PERMIT-TO-INSTALL APPLICATION
OHIO RIVER CLEAN FUELS FACILITY
VILLAGE OF WELLSVILLE, COLUMBIANA AND JEFFERSON COUNTIES, OHIO

SUBMITTED TO:

OHIO ENVIRONMENTAL PROTECTION AGENCY

SUBMITTED BY:

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CEC PROJECT 061-933.0024

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MODULE 1

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1.0 PROCESS DESCRIPTION

The feedstock storage area will be located on an engineered plateau at an elevation of approximately 1,042 feet. The majority of plant facilities will be located 68 feet above the storage area at an elevation of approximately 1,110 feet. The location of the storage piles, 68 feet below the main plant, will provide a barrier to the prevailing westerly winds that will help limit fugitive particulate emissions.

Feedstock will be delivered to six storage piles. The total storage pile area will be approximately 19 acres and will consist of one 2.6-acre coal pile for truck deliveries, three 2.2-acre coal piles for conveyor deliveries, one 2.2-acre roofed biomass pile, one 2.2-acre roofed pile for either coal or biomass, and approximately 5.2 acres of coal handling area. The maximum height of each pile is expected to be about 50 feet. Feedstock delivery and pile management is assumed to occur 24 hours per day, seven days per week. Figure 4 is a block flow diagram of the process (see Attachment 1A).

Coal will be the primary feedstock for the facility (e.g., Pittsburgh #8 bituminous). Coal will be delivered by either conveyor or truck, as discussed in Module 2. Conveyors will deliver coal to one of two stacker/reclaimers. Each stacker/reclaimer will service two piles. The stacking capacity of each machine (transfer from conveyor to pile) will be 3,500 tons per hour (tph) and the reclaiming capacity of each machine (transfer from the pile to conveyors) will be 2,000 tph. Both stacker/reclaimers will be electric powered. Coal may also be delivered by truck. Truck deliveries of coal will be received at a coal and biomass hopper building (see Module 2) and then distributed to the storage pile by conveyor.

The facility will also have the capacity to process biomass. Biomass will consist of either sawdust or wood chips. Biomass will be delivered to the biomass storage area by either 2,000 tph conveyor or by truck. Load-out from the pile would be by loader to a hopper in the feedstock conveyor system.

Conveyors, transfer towers, and truck delivery facilities proposed for delivery of feedstock to the piles are discussed in Module 2. Coal and biomass will also be transferred from storage to the plant via the feedstock processing facilities described in Module 2.

2.0 AIR EMISSIONS INVENTORY

Fugitive emissions of particulate matter will be produced by wind erosion of the storage piles. In addition, feedstock handling operations associated with the stacker/reclaimers and pile management will produce airborne particulate that will result in fugitive emissions.

2.1 Wind Erosion of Feedstock Storage Piles

Feedstock storage piles will occupy an area of approximately 19 acres. Approximately 14.4 acres will be dedicated to coal storage and handling. Biomass storage will typically encompass a 2.2 acre area. An additional 2.2-acre area will be used for either coal or biomass storage. The storage piles are estimated to reach 50 feet in height.

Emissions from the storage piles will be from wind erosion. Wind erosion emissions have been based on the continuously active pile equation provided in Control of Open Fugitive Dust Sources (U.S. EPA, September 1988). Use of this equation is based on the assumption that the entire storage pile undergoes continuous disruption which makes silt available for wind erosion. This assumption accounts for the anticipated 24 hour per day, 7 day per week operation of the stacker/reclaimers and the continuous operation of bulldozers to manage the storage piles.

$$E = (k) \times (s/1.5) \times [(365 - p)/235] \times (f/15)$$

Where:

- E = Emission factor, in lb PE or lb PM10/day/acre
- k = 1.7 for PE, 0.85 for PM10
- s = silt content of the stored material, weight percent
  = 4.8% for coal based on AP-42 Table 13.2.4-1 (attached)
  = 8.0% for biomass (sawdust based on www.engineeringtoolbox.com particle size estimate & AP-42 Section 13.2.4 silt definition)
- p = number of days with > 0.01 inches of precipitation per year, = 150 (AP-42 Figure 13.2.2-1)
- f = percentage of time wind speed exceeds 12 mph, = 28%

Wind erosion estimates have been made for both the coal and biomass piles separately. Detailed calculations are provided in Attachment 1B. Actual storage pile fugitive particulate emissions estimates include the presence of a 2.2-acre biomass storage pile and a 16.6-acre coal storage pile, while potential emissions assume a 4.4-acre biomass storage area and a 14.4-acre pile for coal storage. Storage piles are assumed to be continuously active for both active and potential estimates.

Use of wind barriers has been shown by Sierra Research, Inc. to reduce PM10 emissions from open storage piles by >99% (see Attachment 1C for excerpts from the *Final BACM Technological and Economic Feasibility Analysis*, March 21, 2003). This study was performed using historical meteorological data and wind tunnel tests conducted on wind screens. The results indicated that screens with 50% porosity would reduce the PM10 emissions by >99%. Since the proposed windscreen was 3-sided, it was only intended to reduce winds from three of the cardinal wind directions. Therefore, the >99% PM10 control efficiency was conservatively adjusted by 75%.

2.2 Fugitive Emissions from Storage Pile Load-In and Load-Out

Fugitive particulate emissions will be associated with load-in and load-out of coal and biomass to the storage piles. Particulate emission factors for these activities have been derived using AP-42 Section 13.2.4, Equation 1, as follows:

$$E\ (\text{lb/ton}) = k\ (0.0032)\ [\ (U/5)^{1.3} / (M/2)^{1.4}\ ]$$

Where: E = Emission rate in lb/ton processed

k = 0.053 for PM2.5, 0.35 for PM10 and 0.74 for PE
U = 10 mph (Youngstown Ohio per OEPA Form 3112 Instructions)
M_c = 5.5% moisture (design coal typical specification)
M_b = 30% moisture (average for biomass).

The maximum coal load-in rate for the combined stackers is 7,000 tph and the maximum reclaiming rate for the combined reclaimers is 4,000 tph. Potential emissions are based on the assumption that each machine operates at full capacity either stacking or reclaiming for 50% of the time (equivalent to stacking/reclaiming at an average capacity of 5,500 tph for 8,760 hr/yr). The maximum load-in and load-out rates for coal and biomass from the hopper are assumed to equal the maximum conveyor rates of 2,000 tph operating 8,760 hours per year. Biomass may also be delivered via trucks. The combined delivery of biomass by conveyor and trucks is not expected to exceed an average of 2,000 tph.

Actual emissions are based on the same production scenarios as the potential emissions, however, actual emission rates reflect subsequent reductions for appropriate controls. Actual emission estimates from coal stacker/reclaimer operations have been reduced by 80% based on OEPA Reasonably Available Control Measures (RACM) guidance for chemical dust suppressant application at the point of material handling discharge. Wind barriers have been assumed to provide 50% control during handling of biomass. Coal and biomass deliveries to the storage piles via conveyor from the coal and biomass hopper will also be controlled by dust suppression with 80% and 50% control efficiency, respectively. Details concerning source-specific emission estimates are provided in Attachment 1B.

2.3 Feedstock Storage Emissions Summary

Actual (controlled) and potential (uncontrolled) feedstock storage fugitive emissions are summarized in Attachment 1B (Page 1B-5). References and documentation are provided in Attachment 1C. OEPA Application Forms are provided in Attachment 1D.

3.0 SOURCE-SPECIFIC APPLICABLE REGULATIONS

This section presents information concerning applicable state and federal regulations as well as specific exemptions, as appropriate. State regulatory references are to the Ohio Administrative Code (OAC), unless otherwise noted. Source-specific regulations are discussed relative to each permit application module. Facility-wide applicable regulations are addressed in Section 5 of the PTI Application, Introduction.

3.1 State Regulations

3.1.1 Control of Visible Particulate Emissions from Stationary Sources (3745-17-07)

The feedstock storage area contains sources of fugitive dust. Stationary sources of fugitive dust are subject to Chapter 3745-17-07(B)(1) which limits visible particulate emissions to less than 20% opacity as a three-minute average. Chapter 3745-17-07(B)(6) further states that there shall be no visible particulate emissions from material storage piles except for a period of time not to exceed 13 minutes during any 60-minute observation period.

3.1.2 Restriction of Emission of Fugitive Dust (3745-17-08)

Chapter 3745-17-08(B) applies to the feedstock storage area because of the proposed location in Columbiana County. This rule requires that ORCF apply reasonably available control measures (RACM) to prevent fugitive dust from becoming airborne. Relative to material stockpiles, the rule states that the periodic application of water or other suitable dust suppression chemicals and the use of enclosures are considered RACM.

3.1.3 Permits to Install New Sources (3745-31)

The feedstock storage area contains emission units that will generate fugitive particulate matter. These emission units are part of a major stationary source. Because the major stationary source is located within an attainment area for all criteria pollutants, according to 3745-31-12(A), each emissions unit is subject to an evaluation of best available control technology (BACT). The BACT analysis for these emission units is provided in Section 4. In accordance with 3745-31-05(A)(3), sources are also required to employ best available technology (BAT). Because all sources and pollutants are addressed in the BACT analysis, BAT is assumed to have been achieved for affected emission units.

3.2 Federal Regulations

No federal regulations have been identified that regulate fugitive dust emissions from storage piles and related load-in or load-out activities.

4.0 BACT ANALYSIS

Coal and biomass storage pile fugitive particulate emissions will be caused by wind erosion of the feedstock surface as well as wind entrainment of particles during storage pile load-in and load-out activities. Combined emissions from wind erosion and storage pile load-in and load-out are included in this assessment.

4.1 Available Control Technologies

The RACT, BACT, LAER Clearinghouse (RBLC) database was queried for coal handling, processing, preparation, and cleaning activities (Process 90.011) (see Attachment 1C for RBLC tables). Particulate matter technologies previously determined to be BACT for similar applications include:

- Total enclosure of the process and exhaust to fabric filter baghouse
- Partial enclosures – including the physical design of the coal storage area
- Use of crusting agent on feedstock pile
- Use of water sprays and other dust suppressants at transfer points
- Use of telescopic chutes or lowering tubes for product loading
- Use of physical covers on feedstock pile
- Combinations of the above such as partial enclosure with dust suppression

4.2 Technically Infeasible Options

Physical covers to reduce wind erosion are technically infeasible given the size of the storage piles. All other technologies are feasible for control of particulate emissions from the feedstock storage piles.

4.3 Technology Ranking

Based on a review of the RBLC database, the OEPA RACM guidance for aggregate storage piles, and other literature, technologies for control of particulate from storage piles are ranked as follows from most to least effective control efficiency:

- Total enclosure of the process and exhaust to fabric filter baghouse (95 to 99.9%)
- Partial enclosures with crusting agent and dust suppression at transfers (80 to 99%)
- Use of water sprays and other dust suppressants at transfer points (75 to 90%)
- Use of telescopic chutes or lowering tubes for product loading (75%)
- Partial enclosure alone (50 to 70%)

4.4 Evaluate Most Effective Controls

Total enclosure of the feedstock storage piles using storage domes is believed to be the most effective technology for control of particulate emissions from wind erosion and loading operations. Total annual costs for such a control system are a combination of direct and indirect capital costs, direct and indirect annual costs, and recovery credits, as discussed below.

Direct capital costs would include the domes themselves and a dust collection system for each unit, plus tax and freight. According to current estimates, the cost of a 394-foot diameter dome capable of storing about 200,000 tons of coal would be about $4.5 million installed (see Attachment 1C). Based on the ORCF 30-day storage capacity requirement, four units of this size would be required for coal for a total cost of $18 million. A separate similar-sized dome would be required for biomass storage, for a total building cost of $22.5 million.

Indirect capital costs would include property tax (1%), insurance (1%), and general and administrative costs (2%), amounting to 4% of the capital cost ($900,000).

The total capital investment therefore is estimated at $23,400,000. The capital recovery cost, therefore, would be the product of the investment and the capital recovery factor (CRF). The CRF is calculated according to the following equation:

$$CRF = [\, i\,(1+i)^n \,] \,/\, [\,(1+i)^n - 1\,]$$

Where:

CRF= capital recovery factor
i = interest rate (assumed at 7 percent)
n = equipment life (assumed 10 years for the equipment)

According to this equation, the CRF is 0.1424 and the resulting annual capital recovery cost would be about $3,332,160.

In addition to the direct and indirect capital costs, there would be direct annual costs associated with operating the domes. These costs would include operating labor, maintenance labor, materials, utilities, and replacement parts. While it is believed that the costs to operate five domes would be greater than those to operate the outdoor coal piles, detailed cost estimates have not been developed at this time. Therefore annual costs are assumed to be equivalent.

Recovery credits reflect the credit and/or profit realized from the recovery of materials and/or energy as a result of implementing the BACT option. In this case, control of fugitive emissions to 99.9% efficiency would save 100.6 tons per year of coal or biomass that would otherwise be lost to wind erosion. At $50 per ton, this savings would equal about $5,030 per year.

Combining the capital recovery cost ($3,332,160), the total annual costs (assumed to be equivalent), and the recovery credits (-$5,030), the total annualized cost is estimated to be $3.327 million. Based on an assumed 99.9% control efficiency for the storage domes and baghouses for all feedstock storage activities, an estimated 132 tons per year of particulate would be removed. The average cost effectiveness of this BACT option is therefore estimated to be $25,205 per ton. The actual cost per ton is expected to be higher if all direct and indirect costs were accounted for.

Based on the high cost per ton for the most effective BACT option, ORCF has selected the next most effective control technology for this project. ORCF proposes to use a three-sided windscreen partial enclosure at the coal and biomass storage areas. The design emission reduction efficiency will be at least 75%. ORCF will also use chemical stabilization, dust suppressants, and/or watering, as required. Enclosed conveyors will be used for material transport and measures will be taken to reduce drop heights at transfer points. Additional wind protection will be afforded by the roof structures to be installed over the biomass storage areas.

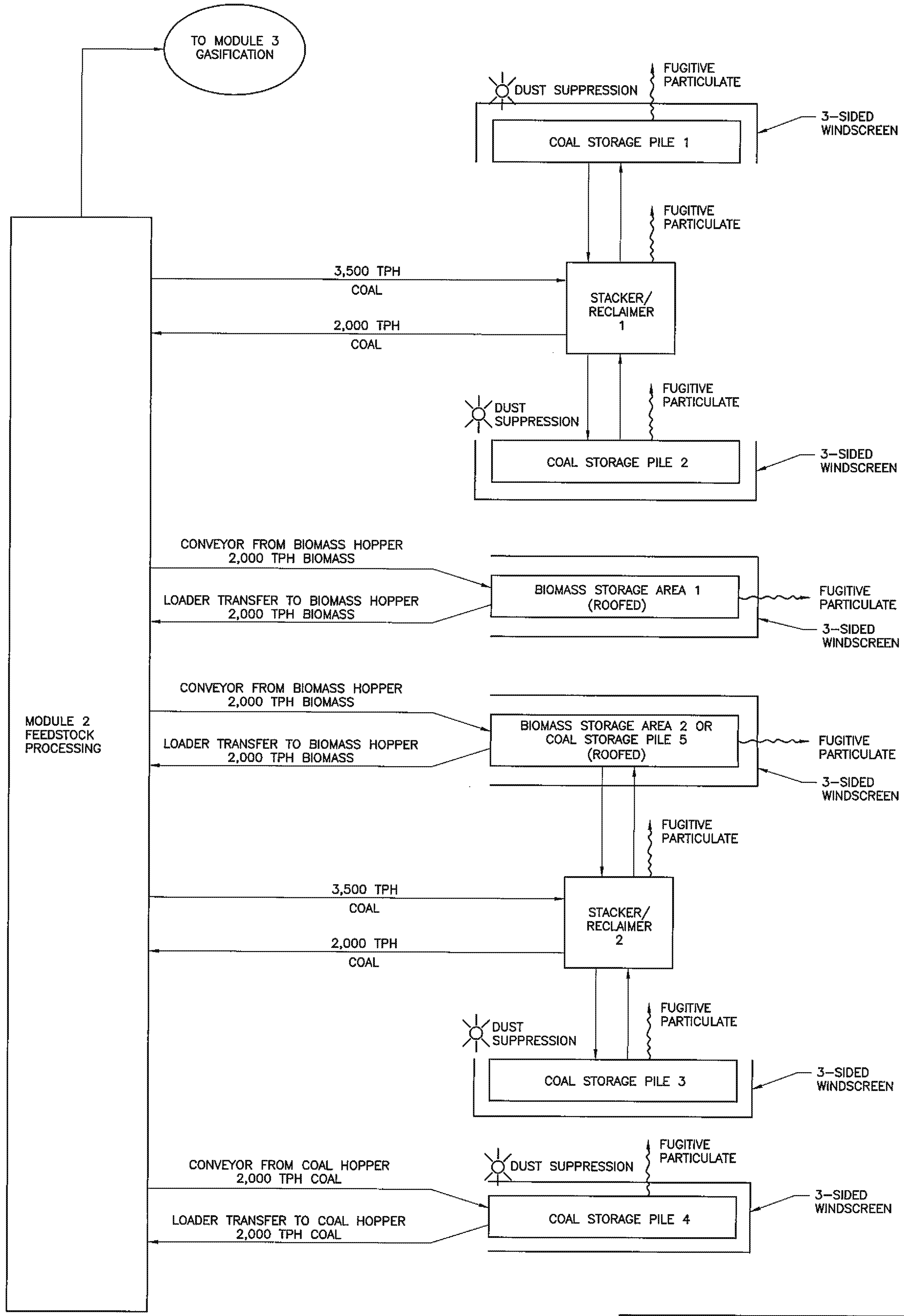
4.5 Proposed BACT Limits and Control Option

Windscreens, dust suppression measures, enclosed conveyors, and reduced drop heights have been selected as BACT for PE and PM10 emissions from coal and biomass storage. Proposed BACT limits are:

- Coal Storage: 12.3 tpy (PM10) and 25.7 tpy (PE)
- Biomass Storage: 1.0 tpy (PM10) and 2.71 tpy (PE)

ATTACHMENT 1A
MODULE 1
FIGURES

\\SVR-PITT\CADD\PROJECTS\2006\061-933\DWG\061933-ENV4-1.DWG {FIG 4} (LCOLAIZZI) - JUL 14, 2008 - 10:23:23



1A-1

SUBMITTAL & REVISION RECORD

NO	DATE	DESCRIPTION
A	06/20/07	OHIO EPA DRAFT SUBMISSION, FIGURE 3 BLOCK FLOW DIAGRAM.DWG
B	12/17/07	AIR PERMIT APPLICATION
C	07/01/08	REVISED AIR PERMIT APPLICATION

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OHIO RIVER CLEAN FUELS, LLC
PROPOSED COAL TO LIQUID FUEL PLANT
COLUMBIANA AND JEFFERSON COUNTY
WELLSVILLE, OHIO

MODULE 1
FEEDSTOCK STORAGE

APPROVED:	Kem		PROJECT NO:	061-933.0002	FIGURE NO:
DRAWN BY: DWD/LKC	CHKD BY: DJL	DWG SCALE: N.T.S.	LAST EDIT DATE:	07/01/08	4

ATTACHMENT 1B
MODULE 1
SUPPORTING CALCULATIONS

Module 1 - Feedstock Storage

Emission Factor Derivation using EPA's Control of Open Fugitive Dust Sources (EPA-450/3-88-008), Section 4.1.3 – Wind Emissions From Continuously Active Piles (September 1988).

Control Efficiency from Sierra Research, Inc, Final BACM Tecnological and Economic Feasibility Analysis, March 21, 2003

E= k (s/1.5) ((365-p)/235) (f/15) (from EPA-450/3-88-008)

E: particulate matter emission factor (lb/d/acre)
k: 1.7 for PE and 0.85 for PM10
s: silt content of feedstock (%)
p: number of days with ≥0.01 inch of precipitation per year
f: percentage of time that unobstructed wind speed exceeds 5.4 m/s (12 mph) at mean pile height

Assumptions

4.8	% (s) coal silt content per high range of AP-42 Section 13.2.4-1 for coal as delivered
8.0	% (s) biomass silt content - www.engineeringtoolbox.com, AP-42 Section 13.2.4
150	days (p) - AP-42 Figure 13.2.2-1
28	% time (f) winds exceed 12 mph used for potential emission estimates (based on review of local meteorological data).
active area	(it is assumed that the entire surface area is continuously active and that this represents potential (uncontrolled) emissions)
75%	control efficiency achieved through the application of a 3-sided physical wind barrier with 50% porosity (Sierra Research, Inc, Final BACM Tecnological and Economic Feasibility Analysis, March 21, 2003)

Potential Emissions Pile Size Estimates

14.4 acres - coal pile area (assumes 2.2 acres of the potential 16.6-acre area is used for biomassl)
4.4 acres - biomass pile area (represents worst-case, maximum biomass storage area)

Actual Emissions Pile Size Estimates

16.6 acres - coal pile area (represents maximum coal storage area)
2.2 acres - biomass pile area (represents typical biomass storage area)

Fugitive Emissions From Continuously Active Piles - Potential (Uncontrolled) Emissions

Coal Piles

(PE) Equation: E= 1.7 (4.8 / 1.5) x ((365-150)/235) x (28/15)
(PM-10) Equation: E= 0.85 (4.8 / 1.5) x ((365-150)/235) x (28/15)

	PE	PM-10	
E	9.29	4.65	lb/d/acre
	133.78	66.89	lb/d
	5.57	2.79	lb/hr
	24.42	12.21	tpy

Module 1 (cont.) - Feedstock Storage

Fugitive Emissions From Continuously Active Piles - Potential (Uncontrolled) Emissions (cont.)

Biomass Piles
(PE) Equation: E= 1.7 (8.0 / 1.5) x ((365-150)/235) x (28/15)
(PM-10) Equation: E= 0.85 (8.0 / 1.5) x ((365-150)/235) x (28/15)

	PE	PM-10	
E	15.48	7.74	lb/d/acre
	68.13	34.06	lb/d
	2.84	1.42	lb/hr
	12.43	6.22	tpy

Fugitive Emissions From Continuously Active Piles - Actual Emissions

Coal Piles
(PE) Equation: E= 1.7 (4.8 / 1.5) x ((365-150)/235) x (28/15) x (1-.75 control efficiency)
(PM-10) Equation: E= 0.85 (4.8 / 1.5) x ((365-150)/235) x (28/15) x (1-.75 control efficiency)

	PE	PM-10	
E	2.32	1.16	lb/d/acre
	38.56	19.28	lb/d
	1.61	0.80	lb/hr
	7.04	3.52	tpy

Biomass Piles
(PE) Equation: E= 1.7 (8.0 / 1.5) x ((365-150)/235) x (28/15) x (1-.75 control efficiency)
(PM-10) Equation: E= 0.85 (8.0 / 1.5) x ((365-150)/235) x (28/15) x (1-.75 control efficiency)

	PE	PM-10	
E	3.87	1.94	lb/d/acre
	8.52	4.26	lb/d
	0.35	0.18	lb/hr
	1.55	0.78	tpy

Module 1 (cont.) - Feedstock Storage

Emission Factor Derivation using AP-42 Section 13.2.4: Aggregate Handling and Storage Piles

E= k (0.0032) (((U/5)^1.3) / ((M/2)^1.4))

E: total fugitive particulate emission factor (lb/ton)
k: particle size multiplier (dimensionless)
U: mean wind speed, meters per second (m/s) (miles per hour [mph])
M: material moisture content (%)

Assumptions

0.35	PM10 - particle size multiplier
0.74	PE - particle size multiplier
10	mph (U) - per OEPA Form 3112 Instructions
5.5	% (M) - coal moisture design specification
30	% (M) - biomass moisture design specification
5,500	tph coal (maximum potential stacker/reclaimer rate)
2,000	tph coal (maximum truck delivery rate)
2,000	tph biomass (maximum biomass conveyor and/or truck delivery capacity)
8,760	hpy operation
80	% control efficiency for dust suppressant application at coal transfer points
50	% control efficiency for presence of wind guard provided by roofed biomass areas (per RACM Table 2.1.2-8).

Fugitive Particulate Emissions from Material Handling - Potential (Uncontrolled) Emissions

Total Fugitive Particulate Emission Factor Equation: E=k(0.0032)(((U/5)^1.3)/((M/2)^1.4))

Stacker/Reclaimer Operation: Coal Load-In / Load-Out

	Load-In PE	Load-In PM-10		Load-Out PE	Load-Out PM-10	
E	1.41E-03	6.69E-04	lb/ton			
	7.78	3.68	lb/hr	7.78	3.68	lb/hr
	34.08	16.12	tpy	34.08	16.12	tpy

Conveyor Load-In of Coal from Hopper / Load-Out

	Load-In PE	Load-In PM-10		Load-Out PE	Load-Out PM-10	
E	1.41E-03	6.69E-04	lb/ton			
	2.83	1.34	lb/hr	2.83	1.34	lb/hr
	12.39	5.86	tpy	12.39	5.86	tpy

Conveyor and/or Truck Load-In of Biomass / Load-Out

	Load-In PE	Load-In PM-10		Load-Out PE	Load-Out PM-10	
E	1.32E-04	6.22E-05	lb/ton			
	0.26	0.12	lb/hr	0.26	0.12	lb/hr
	1.15	0.55	tpy	1.15	0.55	tpy

Module 1 (cont.) - Feedstock Storage

Fugitive Particulate Emissions from Material Handling - Actual (Controlled) Emissions

Stacker/Reclaimer Operation: Coal Load-In / Load-Out

	PE	PM-10		PE	PM-10	
E	1.41E-03	6.69E-04	lb/ton			
	1.56	0.74	lb/hr	1.56	0.74	lb/hr
	6.82	3.22	tpy	6.82	3.22	tpy

Conveyor Load-In of Coal from Hopper / Load-Out

	PE	PM-10		PE	PM-10	
E	1.41E-03	6.69E-04	lb/ton			
	0.57	0.27	lb/hr	0.57	0.27	lb/hr
	2.48	1.17	tpy	2.48	1.17	tpy

Conveyor and/or Truck Load-In of Biomass / Load-Out

	PE	PM-10		PE	PM-10	
E	1.32E-04	6.22E-05	lb/ton			
	0.13	0.02	lb/hr	0.13	0.02	lb/hr
	0.58	0.11	tpy	0.58	0.11	tpy

Module 1 (cont.) - Feedstock Storage

Summary: Total Feedstock Fugitive Emissions

Short-Term (lb/hr)

	ACTUAL		POTENTIAL	
	PE	**PM-10**	**PE**	**PM-10**
Coal Pile Wind:	1.61	0.8	5.57	2.79
Biomass Pile Wind:	0.35	0.18	2.84	1.42
Coal Load-In (Stackers):	1.56	0.74	7.78	3.68
Coal Load-Out (Reclaimers):	1.56	0.74	7.78	3.68
Coal Load-in (Hopper/Conveyor)	0.57	0.27	2.83	1.34
Coal Load-Out (Hopper/Conveyor)	0.57	0.27	2.83	1.34
Biomass Load-In (Conveyor):	0.13	0.02	0.26	0.12
Biomass Load-Out (Conveyor):	0.13	0.02	0.26	0.12
TOTALS	**6.47**	**3.04**	**30.16**	**14.50**
Biomass:	0.61	0.23	3.37	1.67
Coal:	5.85	2.81	26.79	12.83

Long-Term (tpy)

	ACTUAL		POTENTIAL	
	PE	**PM-10**	**PE**	**PM-10**
Coal Pile Wind:	7.04	3.52	24.42	12.21
Biomass Pile Wind:	1.55	0.78	12.43	6.22
Coal Load-In (Stackers):	6.82	3.22	34.08	16.12
Coal Load-Out (Reclaimers):	6.82	3.22	34.08	16.12
Coal Load-in (Hopper/Conveyor)	2.48	1.17	12.39	5.86
Coal Load-Out (Hopper/Conveyor)	2.48	1.17	12.39	5.86
Biomass Load-In (Conveyor):	0.58	0.11	1.15	0.55
Biomass Load-Out (Conveyor):	0.58	0.11	1.15	0.55
TOTALS	**28.33**	**13.31**	**132.10**	**63.48**
Biomass:	2.70	1.00	14.74	7.31
Coal:	25.63	12.31	117.36	56.17

ATTACHMENT 1C
MODULE 1
DOCUMENTATION

LIST OF REFERENCES

- Buckeye Industrial Mining Company Ohio EPA PTI No. 02-22500 Engineering Review 2007.
- Sierra Research, Inc., Final BACM Technological and Economic Feasibility Analysis, prepared for San Joaquin Valley Unified Air Pollution Control District, March 21, 2003.
- U.S. EPA, AP-42 Section 13.2.4 – *Aggregate Handling and Storage Piles*, November 2006.
- U.S. EPA, AP-42 Section 13.2.2 – *Unpaved Roads*, November 2006.
- U.S. EPA , *Control of Open Fugitive Dust Sources*, September 1988.
- U.S. EPA, RACT/BACT/LAER Clearinghouse (RBLC); website: http://cfpub.epa.gov/RBLC

RBLC Matching Facilities for Search Criteria:
Permit Date Between 1/1/1997 and 12/9/2007
And Process Type "90.011" Coal Handling, Processing, Preparation, and Cleaning Activities
Pollutant: Particulate Matter

RBLCID	FACILITYNAME	PROCESSNAME	THRUPUT	THRUPUT UNIT	PROCESSNOTES	CTRLDESC	EMISLIMIT1	EMISLIMIT1 UNIT	EMISLIMIT1AVGTIMECONDITION
*IA-0089	HOMELAND ENERGY SOLUTIONS, LLC, PN 06-672	GASIFIER COAL FEED BINS, S14 (07-A-959P)	15	tons	THE GASIFIER COAL FEED BINS ARE USED AS STORAGE FOR FEEDING THE GASIFICATION PROCESS	BAGHOSUE	0.005	GR/DSCF	
IN-0119	AUBURN NUGGET	COAL CAR UNLOADING	165	T/H		BAGHOUSE	0.0052	GR/DSCF	
SC-0104	SANTEE COOPER CROSS GENERATING STATION	COAL HANDLING	26280000	T/YR		BAGHOUSE	1.4	LB/H	EACH UNIT
*ND-0024	SPIRITWOOD STATION	COAL HANDLING	85.3	T/H	DRIED OR RAW LIGNITE	BAGHOUSE	0.005	GR/DSCF	3 H
ND-0020	RICHARDTON PLANT	COAL HANDLING	27	T/H		BAGHOUSE	0.004	GR/DSCF	3 HOUR AVERAGE
FL-0139	SUWANNEE AMERICAN CEMENT COMPANY, INC.	COAL MILL				BAGHOUSE	0.01	GR/DSCF	
FL-0139	SUWANNEE AMERICAN CEMENT COMPANY, INC.	COAL MILL				BAGHOUSE	0.01	GR/DSCF	
WI-0234	STORA ENSO - BIRON MILL	COAL SILO				BAGHOUSE	0.1	LB/H	METHOD 5+202
*IA-0089	HOMELAND ENERGY SOLUTIONS, LLC, PN 06-672	COAL STORAGE RECLAIM SILO, S16 (07-A-961P)	5000	tons	THIS IS USED TO STORE COAL	BAGHOUSE	0.005	GR/DSCF	BACT
*IA-0089	HOMELAND ENERGY SOLUTIONS, LLC, PN 06-672	COAL STORAGE SILOS, S15 (07-A-960P)	5000	tons	THROUGHPUT IS ALSO 200 TONS PER HOUR	BAGHOUSE	0.005	GR/DSCF	
*IA-0086	UNIVERSITY OF NORTHERN IOWA	COAL SYSTEM - BUNKER #3 SILO	27.4	lbs/hr		BAGHOUSE	0.005	GR/DSCF	AVERAGE OF 3 RUNS
WY-0039	TWO ELK GENERATION PARTNERS, LIMITED PARTNERSHIP	DUMP POCKET, COAL	3000	SCFM	3000 SCFM BAGHOUSE	BAGHOUSE	0.01	GR/DSCF	
MT-0009	COLSTRIP ENERGY LIMITED PARTNERSHIP	ELECTRIC GENERATION, MATERIAL TRANSFER	0		MATERIAL TRANSFER/HANDLING INCLUDES:COAL TRUCK UNLOADING; COAL CRUSHING, SCREENING AND TRANSFER; COAL STORAGE; LIMESTONE TRUCK UNLOADING, HANDLING AND STORAGE; FLYASH CONVEYING AND STORAGE; BEDASH CONVEYING AND STORAGE.	BAGHOUSE	6	LB/H	
TX-0342	LIMESTONE ELECTRIC GENERATING STATION	FUEL HANDLING CRUSHER HOUSE				BAGHOUSE	2.66	LB/H	
TX-0342	LIMESTONE ELECTRIC GENERATING STATION	FUEL HANDLING LIGNITE MINE TRANSFER SILO				BAGHOUSE	2.23	LB/H	
TX-0342	LIMESTONE ELECTRIC GENERATING STATION	FUEL HANDLING OUTBOARD TOWER NO 1				BAGHOUSE	0.26	LB/H	
TX-0342	LIMESTONE ELECTRIC GENERATING STATION	FUEL HANDLING RAIL CAR UNLOADER VAULT				BAGHOUSE	0.17	LB/H	
TX-0342	LIMESTONE ELECTRIC GENERATING STATION	FUEL HANDLING SILOS GALLERY A-D (4) UNIT 1&2				BAGHOUSE	2.49	LB/H	EACH
TX-0342	LIMESTONE ELECTRIC GENERATING STATION	FUEL HANDLING STACKING HOPPER VAULT				BAGHOUSE	0.13	LB/H	
TX-0342	LIMESTONE ELECTRIC GENERATING STATION	FUEL HANDLING TRANSFER STATION NO 1				BAGHOUSE	0.13	LB/H	
TX-0342	LIMESTONE ELECTRIC GENERATING STATION	FUEL HANDLING TRANSFER STATION NO 3				BAGHOUSE	0.09	LB/H	
TX-0342	LIMESTONE ELECTRIC GENERATING STATION	FUEL HANDLING TRANSFER TOWER NO 1Y				BAGHOUSE	3.43	LB/H	
TX-0342	LIMESTONE ELECTRIC GENERATING STATION	FUEL HANDLING TRANSFER TOWER NO 2				BAGHOUSE	1.46	LB/H	
TX-0342	LIMESTONE ELECTRIC GENERATING STATION	FUEL HANDLING TRANSFER TOWER NO 3				BAGHOUSE	2.74	LB/H	
TX-0342	LIMESTONE ELECTRIC GENERATING STATION	FUEL HANDLING TRANSFER TOWER NO. 4				BAGHOUSE	1.37	LB/H	
TX-0342	LIMESTONE ELECTRIC GENERATING STATION	FUEL HANDLING TRIPPER TOWER NO 2				BAGHOUSE	0.17	LB/H	
WI-0225	MANITOWOC PUBLIC UTILITIES	SOLID FUEL STORAGE SILO (P12 / S12)				BAGHOUSE	0.02	GR/DSCF	

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TX-0342	LIMESTONE ELECTRIC GENERATING STATION	FUEL HANDLING ACTIVE STORAGE PILE RECLAIM				BAGHOUSE & WATERSPRAY	0.17	LB/H	
TX-0279	NORTH TEXAS CEMENT COMPANY	MAT STORAGE, CRUSHED COAL/COKE BIN			BAGHOUSE STACK	BAGHOUSE AND SPRAY PILE	0.01	LB/H	
TX-0279	NORTH TEXAS CEMENT COMPANY	MAT STORAGE, CRUSHED COAL/COKE BIN			BAGHOUSE STACK	BAGHOUSE AND SPRAY THE PILE	0.01	LB/H	
*IA-0089	HOMELAND ENERGY SOLUTIONS, LLC, PN 06-672	COAL RECEIVING AND HANDLING, S12 (07-A-958P)	200	T/H	THIS IS THE UNLOADING AND STORAGE OF COAL AT THE FACILITY.	BAGHOUSE AND WATER FOGGING	0.005	GR/DSCF	
WI-0225	MANITOWOC PUBLIC UTILITIES	FUEL CRUSHING (P11)			BAGHOUSE / TOTAL ENCLOSURE, NO EXHAUST / DISCHARGE	BAGHOUSE, TOTAL ENCLOSURE, BAGHOUSE EXHAUST DISCHARGED WITHIN BUILDING.			
ND-0021	GASCOYNE GENERATING STATION	COAL HANDLING	400	T/H		BAGHOUSES	0.005	GR/DSCF	3 H
AR-0074	PLUM POINT ENERGY	MATERIAL HANDLING, COAL, BAGHOUSES			process covers transfer house, tripper deck conveyor, reclaim transfer #3.	BAGHOUSES	0.1	LB/H	
*IA-0067	MIDAMERICAN ENERGY COMPANY	ACTIVE COAL PILE	311155	SQ FT		CHEMICAL DUST SUPPRESSANT			
*IA-0067	MIDAMERICAN ENERGY COMPANY	ACTIVE COAL PILE	311155	SQ FT		CHEMICAL DUST SUPPRESSANT			
*IA-0067	MIDAMERICAN ENERGY COMPANY	BUCKET RECLAIM				CHEMICAL DUST SUPPRESSANT			
*IA-0067	MIDAMERICAN ENERGY COMPANY	BUCKET RECLAIM				CHEMICAL DUST SUPPRESSANT			
*IA-0067	MIDAMERICAN ENERGY COMPANY	INACTIVE COAL STORAGE PILE	1196459	SQ FT		CHEMICAL DUST SUPPRESSANT			
*IA-0067	MIDAMERICAN ENERGY COMPANY	INACTIVE COAL STORAGE PILE	1196459	SQ FT		CHEMICAL DUST SUPPRESSANT			
*IA-0067	MIDAMERICAN ENERGY COMPANY	RAIL UNLOADING				CHEMICAL DUST SUPPRESSANT			
*IA-0067	MIDAMERICAN ENERGY COMPANY	RAIL UNLOADING				CHEMICAL DUST SUPPRESSANT			
*IA-0067	MIDAMERICAN ENERGY COMPANY	RAIL UNLOADING COAL STOCKOUT PILE	28224	SQ FT		CHEMICAL DUST SUPPRESSANT			
*IA-0067	MIDAMERICAN ENERGY COMPANY	RAIL UNLOADING COAL STOCKOUT PILE	28224	SQ FT		CHEMICAL DUST SUPPRESSANT			
*IA-0067	MIDAMERICAN ENERGY COMPANY	STACKER CONVEYOR				CHEMICAL DUST SUPPRESSANT			
*IA-0067	MIDAMERICAN ENERGY COMPANY	STACKER CONVEYOR				CHEMICAL DUST SUPPRESSANT			
*IA-0067	MIDAMERICAN ENERGY COMPANY	TRANSFER TO ACTIVE PILE				CHEMICAL DUST SUPPRESSANT			
*IA-0067	MIDAMERICAN ENERGY COMPANY	TRANSFER TO ACTIVE PILE				CHEMICAL DUST SUPPRESSANT			
CO-0057	COMANCHE STATION	COAL HANDLING AND STORAGE			COAL HANDLING ADDRESSED ON PERMIT 04PB1017. INCLUDES OPEN STORAGE PILE (WITH LOWERING WELL), RAIL-CAR UNLOADING, TRANSFER FROM UNLOADING TO PILE, TRANSFER FROM PILE TO BUNKERS.	CONTROL INCLUDES WATER SPRAYS, LOWER WELL, DUST SUPPRESSANT, ENCLOSURES AND BAGHOUSES WHERE FEASIBLE.	0.01	GR/DSCF	AVG OF 3 TEST RUNS
CO-0057	COMANCHE STATION	COAL HANDLING AND STORAGE			COAL HANDLING ADDRESSED ON PERMIT 04PB1017. INCLUDES OPEN STORAGE PILE (WITH LOWERING WELL), RAIL-CAR UNLOADING, TRANSFER FROM UNLOADING TO PILE, TRANSFER FROM PILE TO BUNKERS.	CONTROLS INCLUDE USE OF WATER SPRAYS, LOWERING WELL, DUST SUPPRESSANTS, ENCLOSURES AND BAGHOUSES WHERE FEASIBLE.	0.01	GR/DSCF	AVG OF 3 TEST RUNS
TX-0279	NORTH TEXAS CEMENT COMPANY	MAT HANDLING COAL/COKE CONVEYOR TO COAL GRINDING			COAL/COKE CONVEYOR BELT TO COAL GRINDING SYSTEM. FUGITIVE EMISSIONS ARE AN ESTIMATE ONLY	COVERED CONVEYOR BELT	0.01	LB/H	LESS THAN
TX-0279	NORTH TEXAS CEMENT COMPANY	MAT HANDLING COAL/COKE CONVEYOR TO COAL GRINDING			COAL/COKE CONVEYOR BELT TO COAL GRINDING SYSTEM. FUGITIVE EMISSIONS ARE AN ESTIMATE ONLY	COVERED CONVEYOR BELT	0.01	LB/H	LESS THAN
TX-0279	NORTH TEXAS CEMENT COMPANY	MAT HANDLING COAL/COKE CONVEYOR TO MILL FEED BIN			FUGITIVE EMISSIONS ARE AN ESTIMATE ONLY	COVERED CONVEYOR BELT	0.01	LB/H	LESS THAN
TX-0279	NORTH TEXAS CEMENT COMPANY	MAT HANDLING COAL/COKE CONVEYOR TO MILL FEED BIN			FUGITIVE EMISSIONS ARE AN ESTIMATE ONLY	COVERED CONVEYOR BELT	0.01	LB/H	LESS THAN
TX-0279	NORTH TEXAS CEMENT COMPANY	MAT HANDLING COAL/COKE CONVEYOR TO STACKER			FUGITIVE EMISSIONS ARE AN ESTIMATE ONLY.	COVERED CONVEYOR BELT	0.01	LB/H	LESS THAN
TX-0279	NORTH TEXAS CEMENT COMPANY	MAT HANDLING COAL/COKE CONVEYOR TO STACKER			FUGITIVE EMISSIONS ARE AN ESTIMATE ONLY.	COVERED CONVEYOR BELT	0.01	LB/H	LESS THAN
TX-0279	NORTH TEXAS CEMENT COMPANY	MAT HANDLING, COAL/COKE UNLOADING CONVEYOR BELT			FUGITIVE EMISSIONS ARE AN ESTIMATE	COVERED CONVEYOR BELT	0.01	LB/H	LESS THAN

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TX-0279	NORTH TEXAS CEMENT COMPANY	MAT HANDLING, COAL/COKE UNLOADING CONVEYOR BELT			FUGITIVE EMISSIONS ARE AN ESTIMATE	COVERED CONVEYOR BELT, WATER SPRAY	0.01	LB/H	LESS THAN
TX-0279	NORTH TEXAS CEMENT COMPANY	MATERIAL HANDLING COAL/COKE DROP BELT TO BELT			FUGITIVE EMISSIONS ARE AN ESTIMATE ONLY.	COVERED CONVEYOR BELTS	0.19	LB/H	
TX-0279	NORTH TEXAS CEMENT COMPANY	MATERIAL HANDLING COAL/COKE DROP BELT TO BELT			FUGITIVE EMISSIONS ARE AN ESTIMATE ONLY.	COVERED CONVEYOR BELTS	0.09	LB/H	
AR-0082	ARKANSAS LIME COMPANY	COAL/COKE BIN VENT, SN-33Q #3				DUST COLLECTOR	0.015	GR/DSCF	VENDOR GUARANTEE
*IA-0086	UNIVERSITY OF NORTHERN IOWA	COAL PILE	50565	tons	THERE ARE 2 PROCESS PERMITS ASSOCIATED WITH THE COAL PILE - COAL PILE RECEIVING AND COAL PILE RECLAIM. BOTH EMISSION UNITS ARE CONSIDERED FUGITIVE.	DUST SUPPRESSANT	95	%	SEE NOTE BELOW
*IA-0086	UNIVERSITY OF NORTHERN IOWA	COAL PILE	50565	tons	THERE ARE 2 PROCESS PERMITS ASSOCIATED WITH THE COAL PILE - COAL PILE RECEIVING AND COAL PILE RECLAIM. BOTH EMISSION UNITS ARE CONSIDERED FUGITIVE.	DUST SUPPRESSANT	95	%	SEE NOTE BELOW
*IA-0086	UNIVERSITY OF NORTHERN IOWA	COAL PILE - TRAFFIC	50565	tons	THERE ARE TWO EMISSION UNITS ASSOCIATED WITH THIS PROCESS AND THEY ARE: COAL PILE - TRUCK TRAFFIC AND COAL PILE - FRONT END LOADER TRAFFIC. BOTH UNITS HAVE THE SAME EMISSION LIMITS AND ARE FUGITIVE.	DUST SUPPRESSANT	80	%	REDUCTION OF SILT LOAD ON PAVED ROADS
*IA-0086	UNIVERSITY OF NORTHERN IOWA	COAL PILE - TRAFFIC	50565	tons	THERE ARE TWO EMISSION UNITS ASSOCIATED WITH THIS PROCESS AND THEY ARE: COAL PILE - TRUCK TRAFFIC AND COAL PILE - FRONT END LOADER TRAFFIC. BOTH UNITS HAVE THE SAME EMISSION LIMITS AND ARE FUGITIVE.	DUST SUPPRESSANT	80	%	REDUCTION OF SILT LOADING ON PAVED ROADS
MT-0027	HARDIN GENERATOR PROJECT	MATERIAL TRANSFER, COAL HANDLING TRANSFER POINTS				DUST SUPPRESSION SYSTEMS AND ENCLOSURES, VENTED TO BAGHOUSE	0.01	GR/DSCF	
MT-0022	BULL MOUNTAIN, NO. 1, LLC - ROUNDUP POWER PROJECT	MATERIAL TRANSFER, COAL HANDLING TRANSFER POINTS				DUST SUPPRESSION SYSTEMS AND ENCLOSURES, BAGHOUSE	0.01	GR/DSCF	
TX-0279	NORTH TEXAS CEMENT COMPANY	MATERIAL HANDLING, COAL/COKE STACKER TO PILE			FUGITIVE EMISSIONS ARE AN ESTIMATE ONLY	ENCLOSURE, WATER SPRAY	0.01	LB/H	LESS THAN
KY-0084	THOROUGHBRED GENERATING STATION	COAL HANDLING AND STORAGE			coal handling and storage: 12 machine points, with capacities between 2000 t/h and 500 t/h.	ENCLOSURES/PARTIAL ENCLOSURES, BAGHOUSE, BIN FILTERS, LOW-PRESSURE DROP AND TELESCOPIC CHUTES	99	% REDUCTI	baghouse
IN-0081	LONE STAR INDUSTRIES, INC.	CEMENT MANUFACTURING, COAL MILL	40	T/YR	THROUGHPUT IN TONS OF COAL PER HOUR, ALSO 313,550 TONS/YR, EMISSION POINT FF 2-11	FABRIC FILTER	0.01	GR/DSCF	
SD-0003	GCC DACOTAH	COAL DRYER - FK PUMP	20	T/H		FABRIC FILTER	0.01	GR/DSCF	
WY-0057	WYGEN 2	COAL HANDLING EQUIPMENT				FABRIC FILTER	0.009	GR/DSCF	
SD-0003	GCC DACOTAH	COAL HOPPER TO CONVEYOR	400	T/H		FABRIC FILTER	0.01	GR/DSCF	
SD-0003	GCC DACOTAH	COAL SURGE BIN TOP (2)	400	T/H	2 identical units	FABRIC FILTER	0.01	GR/DSCF	
SD-0003	GCC DACOTAH	COAL TRANSFER	400	T/H		FABRIC FILTER	0.01	GR/DSCF	
SD-0003	GCC DACOTAH	COAL TUNNEL TO COAL STACKER	400	T/H		FABRIC FILTER	0.01	GR/DSCF	
WI-0233	CLM - SUPERIOR	COAL (SOLID FUEL) STORAGE AND HANDLING (P55)			FUGITIVE DUST PLAN ALSO REQUIRED.	FABRIC FILTER BAGHOUSE, TOTAL ENCLOSURE OF THE PROCESS OPERATIONS.	0.04	LB/H	
NV-0036	TS POWER PLANT	COAL HANDLING OPERATIONS			MULTIPLE TRANSFER POINTS ALL CONTROLLED BY BAGHOUSE	FABRIC FILTER DUST COLLECITON	0.01	GR/DSCF	

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RBLCID	FACILITYNAME	PROCESSNAME	THRUPUT	THRUPUT UNIT	PROCESSNOTES	CTRLDESC	EMISLIMIT1	EMISLIMIT1 UNIT	EMISLIMIT1AVGTIMECONDITION
IA-0057	CARGILL, INC	COAL DUMPING SHED			PERMIT NUMBER: 88-A-134-S3	FABRIC FILTER. STANDARD EMISSION LIMIT CALCULATED FROM PERMIT PROCESS DATA. BASIS OF LIMIT : OTHER - NAAQS	1.541	LB/H	
IA-0057	CARGILL, INC	COAL BUNKER III-CUSTOM FABRICATED			PERMIT NUMBER: 87-A-003-S3	FABRIC FILTER. STANDARD EMISSION LIMIT ESTIMATED FROM PERMIT PROCESS DATA.	0.129	LB/H	
IA-0057	CARGILL, INC	COAL CONVEYING ASPIRATION			PERMIT NO: 88-A-133-S3	FABRIC FILTER. STANDARD EMISSION LIMIT ESTIMATED FROM PERMIT PROCESS DATA.	0.6	LB/H	
IA-0057	CARGILL, INC	COAL BUNKER I			PERMIT NUMBER: 83-A-115-S3	FABRIC FILTER. STANDARD EMISSION UNITS ESTIMATED USING PERMIT PROCESS DATA. BASIS OF LIMIT: OTHER (NAAQS)	0.129	LB/H	
WV-0024	WESTERN GREENBRIER CO-GENERATION, LLC	COAL HANDLING	300	T/H		FABRIC FILTERS	0.01	GR/DSCF	
IA-0057	CARGILL, INC	COAL BUNKER II-CUSTOM FABRICATED			PERMIT NO. 83-A-116-S3	FABRIC FILTERS. STANDARD EMISSION LIMIT ESTIMATED FROM PERMIT PROCESS DATA.	0.129	LB/H	
MN-0061	ERIE NUGGET	COAL & FLUX UNLOADING	4000000	DSCF	COAL MUST BE UNLOADED INSIDE A STRUCTURE.	FF	0.005	GR/DSCF	3-H AV
MN-0061	ERIE NUGGET	COAL & FLUX UNLOADING	4000000	DSCF	COAL MUST BE UNLOADED INSIDE A STRUCTURE.	FF	0.005	GR/DSCF	3-H AV
MN-0061	ERIE NUGGET	COAL PULVERIZER #1	36	MMBTU/H		FF	0.01	GR/DSCF	3-H AV
MN-0061	ERIE NUGGET	COAL PULVERIZER #1	36	MMBTU/H		FF	0.015	GR/DSCF	3-H AV
MN-0061	ERIE NUGGET	COAL PULVERIZER #2	9	MMBTU/H		FF	0.01	GR/DSCF	3-H AV
MN-0061	ERIE NUGGET	COAL PULVERIZER #2	9	MMBTU/H		FF	0.015	GR/DSCF	3-H AV
WI-0225	MANITOWOC PUBLIC UTILITIES	SOLID FUEL RAILCAR / TRUCK UNLOADING, STORAGE (FUG. F21, F22)			COAL / PET COKE / PAPER PELLETS (NATURAL GAS STARTUP)	FUGITIVE DUST CONTROL	20	% OPACITY	
WI-0228	WPS - WESTON PLANT	F56, WESTON UNIT 4 COAL PILE			NORMAL OPERATING SCHEDULE: 24 HRS/DAY, 365 DAYS/YR PROCESS DESCRIPTION: COAL STORAGE PILE AND PILE TRAFFIC FUGITIVE EMISSIONS WILL BE CONTROLLED BY SUPPRESSION SYSTEM OPERATION. MONITORING AND RECORDING WILL BE DONE BY PLANT PERSONNEL INSPECT SYSTEM AND LOG OPERATION.	FUGITIVE DUST CONTROL PLAN; WET SUPRESSANTS OR SURFACE STABILIZING AGENTS; COAL PILE MAINTENACE PROCEDURES; WEEKLY INSPECTION OF INACTIVE PILE	10	% OPACITY	
CO-0055	LAMAR LIGHT & POWER POWER PLANT	COAL HANDLING AND PREPARATION	150	T/H	CRUSHING, HANDLING, STORAGE FOR COMBUSTION IN CALCULATING FLUIDIZED BED BOILER	HIGH EFFICIENCY FABRIC FILTER BAGHOUSES	0.02	LB/T	DURATION OF TESTING
OH-0272	HAVERHILL NORTH COKE COMPANY	LOAD IN AND LOAD OUT OF COKE/COAL STORAGE PILES			Coal and coke load-in and load-out and storage piles. Using Method 22 for visible emissions limit.	LOAD-IN COAL, COKE, AND COKE BREEZE W/ STACKING TUBE; LOAD-IN COAL W/WATER SPRAYS/DUST SUPPRESSANT; LOAD-OUT COAL UNDER PILE GRAVITY FEED AND WATER SPRAY; LOAD-OUT COKE W/ UNDER PILE GRAVITY FEED.	4	T/YR	
OH-0272	HAVERHILL NORTH COKE COMPANY	LOAD IN AND LOAD OUT OF COKE/COAL STORAGE PILES			Coal and coke load-in and load-out and storage piles. Using Method 22 for visible emissions limit.	LOAD-IN COAL, COKE, AND COKE BREEZE W/ STACKING TUBE; LOAD-IN COAL W/WATER SPRAYS/DUST SUPPRESSANT; LOAD-OUT COAL UNDER PILE GRAVITY FEED AND WATER SPRAY; LOAD-OUT COKE W/ UNDER PILE GRAVITY FEED.	1.98	T/YR	
LA-0202	RODEMACHER BROWNFIELD UNIT 3	FUEL STOCKOUT PILE DROP POINT	1500	T/H	ALSO INCLUDES PET COKE.	LOWERING TUBE	0.69	LB/H	HOURLY MAXIMUM

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TX-0342	LIMESTONE ELECTRIC GENERATING STATION	FUEL HANDLING ACTIVE STORAGE PILE				NONE INDICATED	2	T/YR	
TX-0342	LIMESTONE ELECTRIC GENERATING STATION	FUEL HANDLING ACTIVE STORAGE PILE				NONE INDICATED	0.98	T/YR	
TX-0342	LIMESTONE ELECTRIC GENERATING STATION	FUEL HANDLING CONVEYOR NO 3				NONE INDICATED	0.12	LB/H	
TX-0342	LIMESTONE ELECTRIC GENERATING STATION	FUEL HANDLING CONVEYOR NO 3				NONE INDICATED	0.06	LB/H	
TX-0342	LIMESTONE ELECTRIC GENERATING STATION	FUEL HANDLING CONVEYOR NO 2				PARTIAL ENCLOSURE	0.16	LB/H	
TX-0342	LIMESTONE ELECTRIC GENERATING STATION	FUEL HANDLING CONVEYOR NO 2				PARTIAL ENCLOSURE	0.07	LB/H	
TX-0342	LIMESTONE ELECTRIC GENERATING STATION	FUEL HANDLING OVERLAND CONVEYOR				PARTIAL ENCLOSURE	4.3	LB/H	
TX-0342	LIMESTONE ELECTRIC GENERATING STATION	FUEL HANDLING OVERLAND CONVEYOR				PARTIAL ENCLOSURE	2.04	LB/H	
TX-0342	LIMESTONE ELECTRIC GENERATING STATION	FUEL HANDLING RAIL CAR UNLOADER CONVEYOR 1B				PARTIAL ENCLOSURE	0.19	LB/H	
TX-0342	LIMESTONE ELECTRIC GENERATING STATION	FUEL HANDLING RAIL CAR UNLOADER CONVEYOR 1B				PARTIAL ENCLOSURE	0.09	LB/H	
TX-0342	LIMESTONE ELECTRIC GENERATING STATION	FUEL HANDLING STACKING HOPPER CONVEYOR 1A				PARTIAL ENCLOSURE	0.37	LB/H	
TX-0342	LIMESTONE ELECTRIC GENERATING STATION	FUEL HANDLING STACKING HOPPER CONVEYOR 1A				PARTIAL ENCLOSURE	0.17	LB/H	
TX-0342	LIMESTONE ELECTRIC GENERATING STATION	FUEL HANDLING RAIL CAR UNLOADER				PARTIAL ENCLOSURE & WATER SPRAY	0.63	LB/H	
TX-0342	LIMESTONE ELECTRIC GENERATING STATION	FUEL HANDLING RAIL CAR UNLOADER				PARTIAL ENCLOSURE & WATER SPRAY	0.3	LB/H	
TX-0279	NORTH TEXAS CEMENT COMPANY	MAT HANDLING, COAL/COKE DROP PT TO HOPPER (MT08)			FUGITIVE EMISSIONS ARE AN ESTIMATE ONLY	PARTIAL ENCLOSURE AND WATER SPRAY	0.19	LB/H	
TX-0279	NORTH TEXAS CEMENT COMPANY	MAT HANDLING, COAL/COKE DROP PT TO HOPPER (MT08)			FUGITIVE EMISSIONS ARE AN ESTIMATE ONLY	PARTIAL ENCLOSURE AND WATER SPRAY	0.09	LB/H	
TX-0279	NORTH TEXAS CEMENT COMPANY	MATERIAL HANDLING COAL/COKE DROP FEEDER TO BELT			FUGITIVE EMISSIONS ARE AN ESTIMATE	PARTIAL ENCLOSURE AND WATER SPRAY	0.19	LB/H	
TX-0279	NORTH TEXAS CEMENT COMPANY	MATERIAL HANDLING, COAL/COKE DROP POINT TO PILE			FUGITIVE EMISSIONS ARE AN ESTIMATE ONLY.	PARTIAL ENCLOSURE AND WATER SPRAY	0.47	LB/H	
TX-0279	NORTH TEXAS CEMENT COMPANY	MATERIAL HANDLING, COAL/COKE DROP POINT TO PILE			FUGITIVE EMISSIONS ARE AN ESTIMATE ONLY.	PARTIAL ENCLOSURE AND WATER SPRAY	0.22	LB/H	
TX-0279	NORTH TEXAS CEMENT COMPANY	MATERIAL HANDLING, COAL/COKE DROP POINT TO STACKER			FUGITIVE EMISSIONS ARE AN ESTIMATE ONLY.	PARTIAL ENCLOSURE AND WATER SPRAY	0.22	LB/H	
TX-0279	NORTH TEXAS CEMENT COMPANY	MATERIAL HANDLING, COAL/COKE DROP TO HOPPER (MT05)			FUGITIVE EMISSIONS ARE AN ESTIMATE ONLY	PARTIAL ENCLOSURE AND WATER SPRAY	0.47	LB/H	
TX-0279	NORTH TEXAS CEMENT COMPANY	MATERIAL HANDLING, COAL/COKE DROP TO HOPPER (MT05)			FUGITIVE EMISSIONS ARE AN ESTIMATE ONLY	PARTIAL ENCLOSURE AND WATER SPRAY	0.22	LB/H	
TX-0279	NORTH TEXAS CEMENT COMPANY	MAT HANDLING, COAL/COKE RECEIVING DROP TO HOPPER			FUGITIVE EMISSIONS ARE AN ESTIMATE	PARTIAL ENCLOSURE AND WATER SPRAY.	0.07	LB/H	
TX-0279	NORTH TEXAS CEMENT COMPANY	MAT HANDLING, COAL/COKE RECEIVING DROP TO HOPPER			FUGITIVE EMISSIONS ARE AN ESTIMATE	PARTIAL ENCLOSURE AND WATER SPRAY.	0.04	LB/H	
TX-0279	NORTH TEXAS CEMENT COMPANY	MATERIAL HANDLING, COAL/COKE DROP POINT TO STACKER			FUGITIVE EMISSIONS ARE AN ESTIMATE ONLY.	PARTIAL ENCLOSURE AND WATER SPRAY.	0.47	LB/H	
AR-0074	PLUM POINT ENERGY	MATERIAL HANDLING, COAL, PARTIALLY INCLOSED			THESE SOURCES CONSIST OF BARGE UNLOADING, and COAL TRANSFER CONVEYORS.	PARTIAL ENCLOSURES	0.1	LB/H	

RBLC Matching Facilities for Search Criteria:
Permit Date Between 1/1/1997 and 12/9/2007
And Process Type "90.011" Coal Handling, Processing, Preparation, and Cleaning Activities
Pollutant: Particulate Matter

RBLCID	FACILITYNAME	PROCESSNAME	THRUPUT	THRUPUT UNIT	PROCESSNOTES	CTRLDESC	EMISLIMIT1	EMISLIMIT1 UNIT	EMISLIMIT1AVGTIMECONDITION
TX-0279	NORTH TEXAS CEMENT COMPANY	MATERIAL HANDLING, COAL/COKE STACKER TO PILE			FUGITIVE EMISSIONS ARE AN ESTIMATE ONLY	PARTIAL ENCLOSURES, WATER SPRAYS	0.01	LB/H	LESS THAN
WI-0122	ENERGY SERVICES OF MANITOWOC	FUEL HANDLING			PETROLEUM COKE PROCESSING AND HANDLING	PULSE-JET BAGHOUSES, ENCLOSED CONVEYORS, DUST SUPPRESSION	0.004	GR/DSCF	
OH-0272	HAVERHILL NORTH COKE COMPANY	COAL HANDLING, CONVEYING, AND TRANSFER	6602850	T/YR	Wet coal usage shall not exceed 6,602,850 tons per rolling 12-months.	RAIL CAR BOTTOM DUMPING AND ENCLOSED; BELT CONVEYORS ENCLOSED; WET AND/OR CHEMICAL SUPPRESSION	7.95	T/YR	PM fugitive
OH-0272	HAVERHILL NORTH COKE COMPANY	COAL HANDLING, CONVEYING, AND TRANSFER	6602850	T/YR	Wet coal usage shall not exceed 6,602,850 tons per rolling 12-months.	RAIL CAR BOTTOM DUMPING AND ENCLOSED; BELT CONVEYORS ENCLOSED; WET AND/OR CHEMICAL SUPPRESSION	3.77	T/YR	PM10 fugitive
LA-0202	RODEMACHER BROWNFIELD UNIT 3	FUEL RECLAIM HOPPERS-DROP POINT	750	T/H	ALSO INCLUDES PET COKE.	SLIGHT NEGATIVE PRESSURE FROM CONVEYOR TUNNEL VENTILATION	0.07	LB/H	HOURLY MAXIMUM
TX-0279	NORTH TEXAS CEMENT COMPANY	MATERIAL STORAGE, COAL/COKE PILES			FUGITIVE EMISSIONS ARE AN ESTIMATE ONLY.	SPRAY THE C/C PILES	0.55	LB/H	
TX-0279	NORTH TEXAS CEMENT COMPANY	MATERIAL STORAGE, COAL/COKE PILES			FUGITIVE EMISSIONS ARE AN ESTIMATE ONLY.	SPRAY THE C/C PILES	0.28	LB/H	
CO-0047	HOLNAM, FLORENCE	COAL STOCKPILE				SURFACE MOISTURE	0.45	T/YR	
CO-0047	HOLNAM, FLORENCE	COAL STOCKPILE				SURFACE MOISTURE	0.33	T/YR	
TX-0342	LIMESTONE ELECTRIC GENERATING STATION	FUEL HANDLING EMERGENCY STORAGE PILE				TELESCOPING CHUTE & WATER SPRAY	0.42	T/YR	
TX-0342	LIMESTONE ELECTRIC GENERATING STATION	FUEL HANDLING EMERGENCY STORAGE PILE				TELESCOPING CHUTE & WATER SPRAY	0.21	T/YR	
LA-0122	MANSFIELD MILL	COAL STORAGE AND HANDLING	452016	T/YR	EMISSION POINT 17-93	UNLOADED TO COVER CONVEYOR, PULVERIZER INSIDE BUILDING	0.59	LB/H	
VA-0251	CONSOLIDATION COAL -BUCHANAN PREP PLANT	COAL HANDLING	138	MMBTU/H		VENTUI SCRUBBER	0.019	GR/DSCF	
VA-0251	CONSOLIDATION COAL -BUCHANAN PREP PLANT	COAL HANDLING	138	MMBTU/H		VENTURI SCRUBBER	0.025	GR/DSCF	
VA-0251	CONSOLIDATION COAL -BUCHANAN PREP PLANT	COAL HANDLING-2	253	MMBTU/H	Coal fired Thermal Coal Dryer	VENTURI SCRUBBER	0.025	GR/DSCF	
VA-0251	CONSOLIDATION COAL -BUCHANAN PREP PLANT	COAL HANDLING-2	253	MMBTU/H	Coal fired Thermal Coal Dryer	VENTURI SCRUBBER	0.019	GR/DSCF	
TX-0342	LIMESTONE ELECTRIC GENERATING STATION	FUEL HANDLING STACKING HOPPER				WATER SPRAY	0.63	LB/H	
TX-0342	LIMESTONE ELECTRIC GENERATING STATION	FUEL HANDLING STACKING HOPPER				WATER SPRAY	0.3	LB/H	
TX-0342	LIMESTONE ELECTRIC GENERATING STATION	(2) FUEL HANDLING ACTIVE STORAGE PILES A&B				WATER SPRAY & UNDERGROND RECLAIM VENT TO BAGHOUSE	3.24	T/YR	EACH
TX-0342	LIMESTONE ELECTRIC GENERATING STATION	(2) FUEL HANDLING ACTIVE STORAGE PILES A&B				WATER SPRAY & UNDERGROUND RECLAIM VENT TO BAGHOUSE	1.56	T/YR	EACH
AR-0074	PLUM POINT ENERGY	MATERIAL HANDLING, COAL, SUPPRESSION			THESE SOURCES CONSIST OF RAILCAR UNLOADING, COAL STORAGE PILES, and coal storage pile transfer	WATER SPRAYS, DUST SUPPRESSANTS, ETC	0.1	LB/H	
TX-0342	LIMESTONE ELECTRIC GENERATING STATION	FUEL HANDLING INACTIVE STORAGE PILE				WATERING	18.4	T/YR	
TX-0342	LIMESTONE ELECTRIC GENERATING STATION	FUEL HANDLING INACTIVE STORAGE PILE				WATERING	9.02	T/YR	
VA-0292	ISLAND CREEK COAL - VP #8 GARDEN PLANT	COAL HANDLING AND TRANSFER OPERATIONS	3.5	MMT/YR		WET SUPPRESSION	16.95	T/YR	
VA-0292	ISLAND CREEK COAL - VP #8 GARDEN PLANT	COAL HANDLING AND TRANSFER OPERATIONS	3.5	MMT/YR		WET SUPPRESSION	3.35	T/YR	

RBLC Matching Facilities for Search Criteria:
Permit Date Between 1/1/1997 and 12/9/2007
And Process Type "90.011" Coal Handling, Processing, Preparation, and Cleaning Activities
Pollutant: Particulate Matter

RBLCID	FACILITYNAME	PROCESSNAME	THRUPUT	THRUPUT UNIT	PROCESSNOTES	CTRLDESC	EMISLIMIT1	EMISLIMIT1 UNIT	EMISLIMIT1AVGTIMECONDITION
VA-0292	ISLAND CREEK COAL - VP #8 GARDEN PLANT	COAL PROCESSING PLANT - THERMAL DRYER	153	btu/h	ONE MCNALLY NO. 8 DRYER EQUIPPED WITH TWO COAL AND OIL FIRED RILEY NO.3 BURNERS	WET VENTURI SCRUBBER	0.026	GR/DSCF	
VA-0292	ISLAND CREEK COAL - VP #8 GARDEN PLANT	COAL PROCESSING PLANT - THERMAL DRYER	153	btu/h	ONE MCNALLY NO. 8 DRYER EQUIPPED WITH TWO COAL AND OIL FIRED RILEY NO.3 BURNERS	WET VENTURI SCRUBBER	0.019	GR/DSCF	
MT-0022	BULL MOUNTAIN, NO. 1, LLC - ROUNDUP POWER PROJECT	ACTIVE COAL STORAGE PILE				WIND FENCE AND DUST SUPPRESSION; WORK PRACTICE LIMITS	98	% REDUCTI	see note
MT-0022	BULL MOUNTAIN, NO. 1, LLC - ROUNDUP POWER PROJECT	INACTIVE COAL STORAGE PILE				WIND FENCE, DUST SUPPRESSION, PILE COMPACTION	98	% REDUCTI	see note
OH-0270	CARMEUSE LIME - MAPLE GROVE FACILITY	SOLID FUEL HANDLING - COAL AND COKE				WORK PRACTICES THAT MINIMIZE OR ELIMINATE VISIBLE EMISSIONS OF FUGITIVE DUST.	0.89	LB/H	STACK EMISSIONS
OH-0270	CARMEUSE LIME - MAPLE GROVE FACILITY	SOLID FUEL HANDLING - COAL AND COKE				WORK PRACTICES THAT MINIMIZE OR ELIMINATE VISIBLE EMISSIONS OF FUGITIVE DUST.	0.31	T/YR	FUGITIVE EMISSIONS
*TX-0507	NRG COAL HANDLING PLANT	ACTIVE STORAGE (3)					1.01	LB/H	
*TX-0507	NRG COAL HANDLING PLANT	ACTIVE STORAGE (3)					0.48	LB/H	
*TX-0507	NRG COAL HANDLING PLANT	ACTIVE STORAGE A-B					3.24	T/YR	
*TX-0507	NRG COAL HANDLING PLANT	ACTIVE STORAGE A-B					1.56	T/YR	
UT-0053	DESERET GENERATION AND TRANSMISSION COMPANY	CONVEYOR COAL	475	T/H			925.76	T/Y	
*TX-0507	NRG COAL HANDLING PLANT	COOLING TOWER					5.78	LB/H	
*TX-0507	NRG COAL HANDLING PLANT	CRUSHER HOUSE, TRANSFER TOWER 2, SILOS A-D			EMISSIONS ARE PER EACH SOURCE		0.76	LB/H	
*TX-0507	NRG COAL HANDLING PLANT	CRUSHER HOUSE, TRANSFER TOWER 2, SILOS A-D			EMISSIONS ARE PER EACH SOURCE		0.36	LB/H	
*TX-0507	NRG COAL HANDLING PLANT	EMERGENCY PILE					0.42	T/YR	
*TX-0507	NRG COAL HANDLING PLANT	EMERGENCY PILE					0.21	T/YR	
*TX-0507	NRG COAL HANDLING PLANT	FLY ASH BAG LOADING					0.11	LB/H	
*TX-0507	NRG COAL HANDLING PLANT	FLY ASH BAG LOADING					0.05	LB/H	
*TX-0507	NRG COAL HANDLING PLANT	FLY ASH SILO BAGHOUSE STACK (2)			EMISSIONS ARE PER STACK		1.59	LB/H	
*TX-0507	NRG COAL HANDLING PLANT	FLY ASH STORAGE					1.15	LB/H	
*TX-0507	NRG COAL HANDLING PLANT	FLY ASH TRUCK LOADING					3.38	LB/H	
*TX-0507	NRG COAL HANDLING PLANT	FLY ASH TRUCK LOADING					3.38	LB/H	
*TX-0507	NRG COAL HANDLING PLANT	FLY ASH TRUCK LOADING					1.65	LB/H	
AL-0220	CHEMICAL LIME COMPANY - O"NEAL PLANT	FUEL HANDLING & STORAGE					0.005	GR/DSCF	UNIT DC4619
*TX-0507	NRG COAL HANDLING PLANT	FUEL HANDLING LIGNITE MINE					0.5	LB/H	
*TX-0507	NRG COAL HANDLING PLANT	FUEL HANDLING LIGNITE MINE					0.24	LB/H	
*TX-0507	NRG COAL HANDLING PLANT	FUEL HANDLING OVERLAND CONVEYOR					4.3	LB/H	
*TX-0507	NRG COAL HANDLING PLANT	FUEL HANDLING OVERLAND CONVEYOR					2.04	LB/H	
*TX-0507	NRG COAL HANDLING PLANT	INACITVE STORAGE PILE					18.4	T/YR	
*TX-0507	NRG COAL HANDLING PLANT	INACITVE STORAGE PILE					9.02	T/YR	
TX-0279	NORTH TEXAS CEMENT COMPANY	MATERIAL HANDLING COAL/COKE DROP FEEDER TO BELT			FUGITIVE EMISSIONS ARE AN ESTIMATE		0.09	LB/H	

EPA-450/3-88-008

CONTROL OF OPEN FUGITIVE DUST SOURCES

FINAL REPORT

by

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EPA Contract No. 68-02-4395
Work Assignment 14
MRI Project 8985-14

William L. Elmore, Project Officer
Emission Standards Division

Office of Air Quality Planning and Standards
U. S. Environmental Protection Agency
Research Triangle Park, North Carolina

September 1988

The recommended emission factor equation presented above assumes that all of the erosion potential corresponding to the fastest mile of wind is lost during the period between disturbances. Because the fastest mile event typically lasts only about 2 min, which corresponds roughly to the half-life for the decay of actual erosion potential, it could be argued that the emission factor overestimates particulate emissions. However, there are other aspects of the wind erosion process which offset this apparent conservatism:

1. The fastest mile event contains peak winds which substantially exceed the mean value for the event.

2. Whenever the fastest mile event occurs, there are usually a number of periods of slightly lower mean wind speed which contain peak gusts of the same order as the fastest mile wind speed.

Of greater concern is the likelihood of overprediction of wind erosion emissions in the case of surfaces disturbed infrequently in comparison to the rate of crust formation.

4.1.3 Wind Emissions From Continuously Active Piles

For emissions from wind erosion of active storage piles, the following total suspended particulate (TSP) emission factor equation is recommended:

$$E = 1.9 \left(\frac{s}{1.5}\right) \left(\frac{365-p}{235}\right) \left(\frac{f}{15}\right) \text{ (kg/d/hectare)}$$

$$E = 1.7 \left(\frac{s}{1.5}\right) \left(\frac{365-p}{235}\right) \left(\frac{f}{15}\right) \text{ (lb/d/acre)} \qquad (4\text{-}9)$$

where: E = total suspended particulate emission factor

s = silt content of aggregate, percent

p = number of days with $\geq$0.25 mm (0.01 in.) of precipitation per year

f = percentage of time that the unobstructed wind speed exceeds 5.4 m/s (12 mph) at the mean pile height

The fraction of TSP which is PM_{10} is estimated at 0.5 and is consistent with the PM_{10}/TSP ratios for materials handling (Section 4.1.1) and wind erosion (Section 4.1.2). The coefficient in Equation (4-9) is taken from Reference 1, based on sampling of emissions from a sand and gravel storage pile area during periods when transfer and maintenance equipment was not operating. The factor from Reference 1, expressed in mass per unit area per day, is more reliable than the factor expressed in mass per unit mass of material placed in storage, for reasons stated in that report. Note that the coefficient has been halved to adjust for the estimate that the wind speed through the emission layer at the test site was one half of the value measured above the top of the piles. The other terms in this equation were added to correct for silt, precipitation, and frequency of high winds, as discussed in Reference 2. Equation (4-9) is rated in AP-42 as C for application in the sand and gravel industry and D for other industries (see Appendix A).

Worst case emissions from storage pile areas occur under dry windy conditions. Worst case emissions from materials handling (batch and continuous drop) operations may be calculated by substituting into Equation (4-9) appropriate values for aggregate material moisture content and for anticipated wind speeds during the worst case averaging period, usually 24 h. The treatment of dry conditions for vehicle traffic (Section 3.0) and for wind erosion (Equation 4-9), centering around parameter p, follows the methodology described in Section 3.0. Also, a separate set of nonclimatic correction parameters and source extent values corresponding to higher than normal storage pile activity may be justified for the worst case averaging period.

4.2 DEMONSTRATED CONTROL TECHNIQUES

The control techniques applicable to storage piles fall into distinct categories as related to materials handling operations (including traffic around piles) and wind erosion. In both cases, the control can be achieved by (a) source extent reduction, (b) source improvement related to work practices and transfer equipment (load-in and load-out operations), and (c) surface treatment. These control options are summarized in Table 4-6. The efficiency of these controls ties back to the emission factor relationships presented earlier in this section.

In most cases, good work practices which confine freshly exposed material provide substantial opportunities for emission reduction without the need for investment in a control application program. For example, pile activity, loading and unloading, can be confined to leeward (downwind) side of the pile. This statement also applies to areas around

Larson, David

From: Kari Kauppi [kkauppi@temcor.com]
Sent: Tuesday, November 20, 2007 5:31 PM
To: Larson, David
Subject: Coal domes, Eastern Ohio (Temcor ref. 8495)
Importance: High
Attachments: TEMCOR Domes - examples.pdf; TEMCOR dome - central tower erection.pdf

Dave,

Nice chatting with you this morning.

It looks like the cost of a 120m dome supplied, delivered and erected would be about $4.5million. This is a budget number and with multiple domes, I am sure the cost would drop. But at least it gives you an idea. You should be able to handle the tonnage that your client needs with probably four if the Mai Liao set up is used.

I have attached some excerpts from our presentation, hopefully that helps. More where that came from.

As I mentioned, anytime you want me to come by and make a presentation and talk 'turkey' (timely comment, don't you think), just let me know.

Regards,
Kari

Kari Kauppi
Sales Manager, Bulk Material Storage
TEMCOR

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sierra research

Final BACM Technological and Economic Feasibility Analysis

prepared for:

San Joaquin Valley Unified Air Pollution Control District

March 21, 2003

prepared by:

Sierra Research, Inc.
1801 J Street
Sacramento, California 95814
(916) 444-6666

5. BULK MATERIALS

Bulk materials refer to finely grained solid materials that are typically handled and stored in large quantities. These materials produce PM10 emissions when handling and storage in outdoors settings allows fine dust to become entrained in the air and transported over property boundaries. Emissions from bulk material handling and storage can only be controlled through preventive means, including the covering or enclosure of these materials, the formation of consolidated surface crusts on outdoor piles, or the wetting of these materials to bind fine particles to larger ones. All of the candidate BACMs that impact bulk materials are preventive measures. These measures, together with their respective cost-effectiveness ratios, are listed in Table 5. Supporting calculations are presented in Appendix B.

Table 5
Bulk Material Candidate BACM Cost-Effectiveness

Number	Measure	Cost-Effectiveness ($ per ton of PM10 reduced)
5.a	Require that VDE not exceed property line	NA
5.b	Require construction of 3-sided enclosures with 50% porosity	$659,000
5.c	Impose Rule 8031 requirements on sites storing less than 100 cubic yards of bulk materials	$659,000
5.d	Impose Rule 8031 requirements on agricultural off-field storage of non-commodity bulk materials	NA

<u>5.a. Require that VDE not exceed property line:</u> Rule 8031 currently requires that the outdoor handling, storage, and transport of bulk materials not cause VDE to exceed 20% opacity. Under this proposed BACM, control measures would have to be implemented that would additionally prevent VDE from crossing any property line. Unfortunately, the cost-effectiveness of this candidate BACM cannot be quantified because no data relating emissions to VDE plume density could be found in the research literature.

<u>5.b. Require construction of 3-sided enclosures with 50% porosity:</u> Rule 8031 currently allows for the construction and maintenance of wind barriers sufficient to limit VDE to 20% opacity as an alternative method of controlling windblown PM10 emissions from bulk material storage piles. Under this proposed measure, wind barriers would have to be 3-sided and constructed to a 50% porosity standard (i.e., each lateral side would be faced

with horizontal strips alternating with open spaces of equal width). To evaluate this measure, we evaluated the costs and benefits of protecting a five-cubic-yard bulk material storage pile.

The cost of constructing a 3-sided enclosure around a storage pile was derived from a Caltrans construction cost database.* For construction materials, we assumed the use of a cyclone fence with slats and metal posts. The construction cost of this fence was estimated to be $832 which, over a 15-year useful life, would equate to an annualized capital cost of $109.

Baseline emissions were computed from the CARB emission factors for windblown dust from unpaved roads.† The emission factors are reported on a county-specific basis, and a Valley average factor was computed by weighting each county-specific factor by the county land area. The resulting factor, converted from units of pounds of PM10 emitted per mile of 20-foot-wide unpaved road to pounds of PM10 emitted per acre of disturbed soil, was calculated to be 156 pounds of PM10 per acre per year. The surface area of a 5-cubic-yard pile with a typical angle of repose of 35E is 124 square feet, or 0.003 acres. From these factors, uncontrolled emissions were estimated to be 0.44 pounds of PM10 per year.

The control efficiency of a windscreen fence was evaluated from limited research data and dispersion modeling. Research conducted on wind screens in a wind tunnel test indicate that 50% porosity fences are capable of reducing downwind wind speeds to 50% of upwind wind speeds.‡ To evaluate the effect of a 50% reduction in wind speed on windblown PM10 emissions, we reconfigured a District meteorological file and reevaluated PM10 impacts from an earlier modeling study. In the earlier study, we evaluated the impacts at the Corcoran PM10 monitoring station from windblown PM10 generated by nearby disturbed open fields using a meteorological database collected at the Lemoore Naval Air Station in 1968.§ In this subsequent effort, we reduced the recorded wind speeds by 50% in each hourly record, and reran the ISC model to determine the changes in impact at the monitoring station. Because wind erosion occurs only above a wind speed threshold that ranges from 12 to 18 miles per hour, the reduction of wind speeds by 50% results in a dramatic increase in the number of hours during which no emissions are generated. From this analysis, we concluded that reducing wind speeds by 50% in the Corcoran area reduced windblown PM10 emissions by 99.6%. Because the windscreen required by this proposed measure is 3-sided, we conservatively estimated that emissions would be sharply reduced when winds blew from three of the four cardinal wind directions, and that emissions would not be reduced at all when the wind blew from this fourth direction. On this basis, we adjusted the modeled control efficiency by 75% to compute an adjusted control efficiency of 74.7%. The emission

* 2001 Contract Cost Data, A Summary of Cost by Items for Highway Construction Projects, California Department of Transportation, January 2002, http://www.dot.ca.gov/hq/esc/oe/awards/

† Section 7.13, Windblown Dust - Unpaved Roads, CARB Area Source Methodologies, August 1997, http://www.arb.ca.gov/emisinv/areasrc/fullpdf/full7-13.pdf

‡ A Wind Tunnel Study of Wind Screen Effectiveness for Fugitive Dust Control, Hoydysh, W.G, Holynskyj, O., Rothstein, R., and Lassonde, R., 95-TA34.01, A&WMA 88th Annual Meeting & Exhibition, June 1995

§ Analysis of Source Significance Levels Through Dispersion Modeling (draft), prepared by Sierra Research for San Joaquin Valley UAPCD, November 2002 reduction computed using this control efficiency was 0.33 pounds of PM10 per year per 5-cubic-yard bulk material storage pile.

The cost-effectiveness of this proposed measure was estimated to be $330 per pound, or $659,000 per ton, of PM10 reduced.

<u>5.c. Impose Rule 8031 requirements on sites storing less than 100 cubic yards of bulk materials:</u> Rule 8031 currently exempts any site where bulk materials are stored in quantities of less than 100 cubic yards. Under this proposed measure, emissions from bulk material storage would be controlled to Rule 8031 specifications if any quantity of materials were stored on a facility's premises. To evaluate the cost-effectiveness of this measure, we assumed that the smallest quantity of bulk materials that would be stored at a single site would be five cubic yards. We also assumed that the preferred method of control would be construction of a windscreen, as dust suppressants would be effective only if piles remain undisturbed and the tarping of piles would incur labor costs in the frequent uncovering and covering of piles. As the scenario evaluated for this measure is identical to that studied in Measure 5.b, the cost-effectiveness of this measure is estimated to be the same: $330 per pound, or $659,000 per ton, of PM10 reduced.

<u>5.d. Impose Rule 8031 requirements on agricultural off-field storage of non-commodity bulk materials:</u> Rule 8081, Section 5.1, imposes requirements on the off-field storage of bulk materials on agricultural lands that are identical to Rule 8031 requirements. As a result, no analysis of this proposed BACM was conducted because this measure is already being implemented in Regulation VIII.

ATTACHMENT 1D
MODULE 1
OEPA APPLICATION FORMS

Section II - Specific Air Contaminant Source Information

NOTE: One copy of this section should be filled out for each air contaminant source covered by this PTI application. See the line by line PTI instructions for additional information.

1. Company identification (name for air contaminant source for which you are applying): COAL STORAGE

2. List all equipment that are part of this air contaminant source: 4-5 COAL STORAGE PILES, TWO STACKER/RECLAIMERS, COAL CONVEYORS, FRONT-END LOADERS

3. Air Contaminant Source Installation or Modification Schedule (must be completed regardless of date of installation or modification):

   When did/will you begin to install or modify the air contaminant source? (month/year) 2ND QUARTER 2008

   When did/will you begin to operate the air contaminant source? (month/year) 3RD QUARTER 2011 **OR** after issuance of PTI ______________

4. Emissions Information: The following table requests information needed to determine the applicable requirements and the compliance status of this air contaminant source with those requirements. Suggestions for how to estimate emissions may be found in the instructions to the Emissions Activity Category (EAC) forms required with this application. If you need further assistance, contact your Ohio EPA permit representative.

   - If total potential emissions of HAPs or any Air Toxic is greater than 1 ton/yr, fill in the table for that (those) pollutant(s). For all other pollutants, if "Emissions before controls (max), lb/hr" multiplied by 24 hours/day is greater than 10 lb/day, fill in the table for that pollutant.
   - If you have no add-on control equipment, "Emissions before controls= will be the same as "Actual emissions"
   - Annual emissions should be based on operating 8760 hr/yr unless you are requesting operating restrictions to limit emissions in line # 8 or have described inherent limitations below.
   - If you use units other than lb/hr or ton/yr, specify the units used (e.g., gr/dscf, lb/ton charged, lb/MMBtu, ton/12-months).
   - Requested Allowable (ton/yr) is often equivalent to Potential to Emit (PTE) as defined in OAC rule 3745-31-01 and OAC rule 3745-77-01.

Pollutant	Emissions before controls (max) (lb/hr)	Actual emissions (lb/hr)	Actual emissions (ton/year)	Requested Allowable (lb/hr)	Requested Allowable (ton/year)
Particulate emissions (PE) (formerly particulate matter, PM)	26.8	5.9	25.7	5.9	25.7
PM_{10} (PM < 10 microns in diameter)	12.8	2.8	12.3	2.8	12.3
Sulfur dioxide (SO_2)	0	0	0	0	0
Nitrogen oxides (NO_x)	0	0	0	0	0
Carbon monoxide (CO)	0	0	0	0	0
Organic compounds (OC)	0	0	0	0	0
Volatile organic compounds (VOC)	0	0	0	0	0
Total HAPs	0	0	0	0	0
Highest single HAP:	0	0	0	0	0
Air Toxics (see instructions):	0	0	0	0	0

Section II - Specific Air Contaminant Source Information

Provide your calculations as an attachment and explain how all process variables and emission factors were selected. Note the emissions factor(s) employed and document the origin. Example: AP-42, Table 4.4-3 (8/97); stack test, Method 5, 4/96; mass balance based on MSDS; etc.

5. **Does this air contaminant source employ emissions control equipment?**

☒ **Yes** - fill out the applicable information below.

☐ **No** - proceed to item # 6.

Note: Pollutant abbreviations used below: Particulates = PE; Organic compounds = OC; Sulfur dioxide = SO_2; Nitrogen oxides = NOx; Carbon monoxide = CO

☐ **Cyclone/Multiclone**

Manufacturer: ____________ Year installed: ____________
What do you call this control equipment: ____________
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other ____________
Estimated capture efficiency (%): ________ Basis for efficiency: ____________
Design control efficiency (%): ________ Basis for efficiency: ____________
Type: ☐ Cyclone ☐ Multiclone ☐ Rotoclone ☐ Other ____________
☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:
____

☐ **Fabric Filter/Baghouse**

Manufacturer: ____________ Year installed: ____________
What do you call this control equipment: ____________
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other ____________
Estimated capture efficiency (%): ________ Basis for efficiency: ____________
Design control efficiency (%): ________ Basis for efficiency: ____________
Operating pressure drop range (inches of water): Minimum: ________ Maximum: ________
Pressure type: ☐ Negative pressure ☐ Positive pressure
Fabric cleaning mechanism: ☐ Reverse air ☐ Pulse jet ☐ Shaker ☐ Other ____________
☐ Lime injection or fabric coating agent used: Type: ________ Feed rate: ________
☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:
____

☐ **Wet Scrubber**

Manufacturer: ____________ Year installed: ____________
What do you call this control equipment: ____________
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other ____________
Estimated capture efficiency (%): ________ Basis for efficiency: ____________
Design control efficiency (%): ________ Basis for efficiency: ____________
Type: ☐ Spray chamber ☐ Packed bed ☐ Impingement ☐ Venturi ☐ Other ____________
Operating pressure drop range (inches of water): Minimum: ________ Maximum: ________
pH range for scrubbing liquid: Minimum: ________ Maximum: ________
Scrubbing liquid flow rate (gal/min): ________
Is scrubber liquid recirculated? ☐ Yes ☐ No
Water supply pressure (psig): ________ NOTE: This item for spray chambers only.
☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:
____

☐ **Electrostatic Precipitator**

Manufacturer: ____________ Year installed: ____________
What do you call this control equipment: ____________
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other ____________

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Estimated capture efficiency (%):__________ Basis for efficiency: __________
Design control efficiency (%):__________ Basis for efficiency: __________
Type: ☐ Plate-wire ☐ Flat-plate ☐ Tubular ☐ Wet ☐ Other __________
Number of operating fields: __________

☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:
____

☐ **Concentrator**

Manufacturer: __________ Year installed: __________
What do you call this control equipment: __________
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other __________
Estimated capture efficiency (%):__________ Basis for efficiency: __________
Design regeneration cycle time (minutes): __________
Minimum desorption air stream temperature (°F): __________
Rotational rate (revolutions/hour): __________
☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:
____

☐ **Catalytic Incinerator**

Manufacturer: __________ Year installed: __________
What do you call this control equipment: __________
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other __________
Estimated capture efficiency (%):__________ Basis for efficiency: __________
Design control efficiency (%):__________ Basis for efficiency: __________
Minimum inlet gas temperature (°F): __________
Combustion chamber residence time (seconds): __________
Minimum temperature difference (°F) across catalyst during air contaminant source operation: __________
☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:
____

☐ **Thermal Incinerator/Thermal Oxidizer**

Manufacturer: __________ Year installed: __________
What do you call this control equipment: __________
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other __________
Estimated capture efficiency (%):__________ Basis for efficiency: __________
Design control efficiency (%):__________ Basis for efficiency: __________
Minimum operating temperature (°F) and location: __________ (See line by line instructions.)
Combustion chamber residence time (seconds): __________
☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:
____

☐ **Flare**

Manufacturer: __________ Year installed: __________
What do you call this control equipment: __________
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other __________
Estimated capture efficiency (%):__________ Basis for efficiency: __________
Design control efficiency (%):__________ Basis for efficiency: __________
Type: ☐ Enclosed ☐ Elevated (open)
Ignition device: ☐ Electric arc ☐ Pilot flame
Flame presence sensor: ☐ Yes ☐ No
☐ This is the only control equipment on this air contaminant source

If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:

____

☐ **Condenser**

Manufacturer: ____________ Year installed: ____________
What do you call this control equipment: ____________
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other ____________
Estimated capture efficiency (%):________ Basis for efficiency: ____________
Design control efficiency (%):________ Basis for efficiency: ____________

Type: ☐ Indirect contact ☐ Direct contact
Maximum exhaust gas temperature (^oF) during air contaminant source operation: ______
Coolant type: ____________
Design coolant temperature (^oF): Minimum ________ Maximum ________
Design coolant flow rate (gpm): ____________
☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:

____

☐ **Carbon Absorber**

Manufacturer: ____________ Year installed: ____________
What do you call this control equipment: ____________
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other ____________
Estimated capture efficiency (%):________ Basis for efficiency: ____________
Design control efficiency (%):________ Basis for efficiency: ____________
Type: ☐ On-site regenerative ☐ Disposable
Maximum design outlet organic compound concentration (ppmv): ____________
Carbon replacement frequency or regeneration cycle time (specify units): ____________
Maximum temperature of the carbon bed, after regeneration (including any cooling cycle): ________
☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:

____

☐ **Dry Scrubber**

Manufacturer: ____________ Year installed: ____________
What do you call this control equipment: ____________
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other ____________
Estimated capture efficiency (%):________ Basis for efficiency: ____________
Design control efficiency (%):________ Basis for efficiency: ____________
Reagent(s) used: Type: ____________ Injection rate(s): ____________
Operating pressure drop range (inches of water): Minimum: ________ Maximum: ________
☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:

____

☐ **Paint booth filter**

Type: ☐ Paper ☐ Fiberglass ☐ Water curtain ☐ Other ____________
Design control efficiency (%):________ Basis for efficiency: ____________

☒ **Other**, describe: WET SUPPRESSION AT TRANSFER POINTS AND 3-SIDED WINDSCREEN FOR WIND SPEED REDUCTION

Manufacturer: NA Year installed: NEW FACILITY
What do you call this control equipment: FUGITIVE DUST CONTROL PLAN
Pollutant(s) controlled: ☒ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☒ Other PM10
Estimated capture efficiency (%):>99 for coal transfer Basis for efficiency: engineering estimate

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Design control efficiency (%):70 to 80 Basis for efficiency: OEPA RACM Guidance, Table 2.4-2 and engineering estimates

☐ This is the only control equipment on this air contaminant source

If no, this control equipment is: ☐ Primary ☒ Secondary ☐ Parallel

List any other air contaminant sources that are also vented to this control equipment: OTHER SOURCES ARE NOT VENTED TO THIS SOURCE, BUT PRIMARY CONTROL IS VIA WIND SCREEN. SEE DICUSSION IN EMISSIONS INVENTORY.

6. Attach a Process or Activity Flow Diagram to this application for each air contaminant source included in the application. The diagram should indicate their relationships to one another. See the line by line PTI instructions for additional information.

7. Emissions egress point(s) information: PTIs which allow total emissions in excess of the thresholds listed below will be subject to an air quality modeling analysis. This analysis is to assure that the impact from the requested project will not exceed Ohio=s Acceptable Incremental Impacts for criteria pollutants and/or Maximum Allowable Ground Level Concentrations (MAGLC) for air toxics. Permit requests that would have unacceptable impacts can not be approved as proposed. See the line by line PTI instructions for additional information.

   Complete the tables below if the requested allowable annual emission rate for this PTI exceeds any of the following:

   - Particulate Matter (PM10): 10 tons per year
   - Sulfur Dioxide (SO2): 25 tons per year
   - Nitrogen Oxides (NOx): 25 tons per year
   - Carbon Monoxide (CO): 100 tons per year
   - Air Toxic: 1 ton per year. An air toxic is any air pollutant for which the American Council of Governmental Industrial Hygienists (ACGIH) has established a Threshold Limit Value (TLV).

   Complete Table 7-A below for each stack emissions egress point. An egress point is a point at which emissions from an air contaminant source are released into the ambient (outside) air. List each individual egress point on a separate line.

Table 7-A, Stack Egress Point Information

Company Name or ID for the Egress Point (examples: Stack A; Boiler Stack; etc.)	Type Code*	Stack Egress Point Shape and Dimensions (in)(examples: round 10 inch ID; rectangular 14 X 16 inches; etc.)	Stack Egress Point Height from the Ground (ft)	Stack Temp. at Max. Capacity (F)	Stack Flow Rate at Max. Capacity (ACFM)	Minimum Distance to the Property Line (ft)

*Type codes for stack egress points:

A. vertical stack (unobstructed): There are no obstructions to upward flow in or on the stack such as a rain

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cap.

B. vertical stack (obstructed): There are obstructions to the upward flow, such as a rain cap, which prevents or inhibits the air flow in a vertical direction.

C. non-vertical stack: The stack directs the air flow in a direction which is not directly upward.

Complete Table 7-B below for each fugitive emissions egress point. List each individual egress point on a separate line. Refer to the description of the fugitive egress point type codes below the table for use in completing the type code column of the table. For air contaminant sources like roadways and storage piles, only the first 5 columns need to be completed. For an air contaminant source with multiple fugitive emissions egress points, include only the primary egress points.

Table 7-B, Fugitive Egress Point Information

Company ID for the Egress Point (examples; Garage Door B, Building C; Roof Monitor; etc.)	Type Code*	Egress Point Description (examples: garage door, 12 X 30 feet, west wall; outside gravel storage piles; etc.)	Fugitive Egress Point Height from the Ground (ft)	Minimum Distance to the Property Line (ft)	Exit Gas Temp. (F)
COAL STORAGE	F	COAL STORAGE PILES	25	450	ambient
STACKER/ RECLAIMER 1	F	STORAGE PILE LOAD-IN VIA ELEVATED CONVEYOR FROM STACKER/RECLAIMER	25	1120	ambient
STACKER/ RECLAIMER 2	F	STORAGE PILE LOAD-IN VIA ELEVATED CONVEYOR FROM STACKER/RECLAIMER	25	600	ambient
COAL CONVEYORS	F	TRANSFER POINT FROM CONEYORS TO PILES	10	450	ambient
FRONT-END LOADERS	F	FRONT-END LOADERS DEPOSITION ONTO PILE	10	860	ambient

*Type codes for fugitive egress point:

D. door or window
E. other opening in the building without a duct
F. no stack and no building enclosing the air contaminant source (e.g., roadways)

Complete Table 7-C below for each Stack Egress Point identified in Table 7-A above. In each case, use the dimensions of the largest nearby building, building segment or structure. List each individual egress point on a separate line. Use the same Company Name or ID for the Egress Point in Table 7-C that was used in Table 7-A. See the line by line PTI instructions for additional information.

Table 7-C, Egress Point Additional Information (Add rows as necessary)

Company ID or Name for the Egress Point	Building Height (ft)	Building Width (ft)	Building Length (ft)

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8. Request for Federally Enforceable Limits

As part of this permit application, do you wish to propose voluntary restrictions to limit emissions in order to avoid specific requirements listed below, (i.e., are you requesting federally enforceable limits to obtain synthetic minor status)?

☐ yes
☒ no
☐ not sure - please contact me if this affects me

If yes, why are you requesting federally enforceable limits? Check all that apply.

a. ☐ to avoid being a major source (see OAC rule 3745-77-01)
b. ☐ to avoid being a major MACT source (see OAC rule 3745-31-01)
c. ☐ to avoid being a major modification (see OAC rule 3745-31-01)
d. ☐ to avoid being a major stationary source (see OAC rule 3745-31-01)
e. ☐ to avoid an air dispersion modeling requirement (see Engineering Guide # 69)
f. ☐ to avoid another requirement. Describe: ____________________

If you checked a., b. or d., please attach a facility-wide potential to emit (PTE) analysis (for each pollutant) and synthetic minor strategy to this application.. (See line by line instructions for definition of PTE.) If you checked c., please attach a net emission change analysis to this application.

9. If this air contaminant source utilizes any continuous emissions monitoring equipment for indicating or demonstrating compliance, complete the following table. This does not include continuous parametric monitoring systems.

Company ID for Egress Point	Type of Monitor	Applicable performance specification (40 CFR 60, Appendix B)	Pollutant(s) Monitored

10. Do you wish to permit this air contaminant source as a portable source, allowing relocation within the state in accordance with OAC rule 3745-31-03 or OAC rule 3745-31-05?

☐ yes - Note: notification requirements in rules cited above must be followed.
☒ no

11. The appropriate Emissions Activity Category (EAC) form(s) must be completed and attached for each air contaminant source. At least one complete EAC form must be submitted for each air contaminant source for the application to be considered complete.. Refer to the list attached to the PTI instructions.

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NOTE: One copy of this section should be filled out for each air contaminant source covered by this PTI application. See the line by line PTI instructions for additional information.

1. Company identification (name for air contaminant source for which you are applying): BIOMASS STORAGE

2. List all equipment that are part of this air contaminant source: 1-2 BIOMASS STORAGE PILES, BIOMASS CONVEYOR(S), FRONT-END LOADERS

3. Air Contaminant Source Installation or Modification Schedule (must be completed regardless of date of installation or modification):

   When did/will you begin to install or modify the air contaminant source? (month/year) 2ND QUARTER 2008

   When did/will you begin to operate the air contaminant source? (month/year) 3RD QUARTER 2011 **OR** after issuance of PTI ______________

4. Emissions Information: The following table requests information needed to determine the applicable requirements and the compliance status of this air contaminant source with those requirements. Suggestions for how to estimate emissions may be found in the instructions to the Emissions Activity Category (EAC) forms required with this application. If you need further assistance, contact your Ohio EPA permit representative.

   - If total potential emissions of HAPs or any Air Toxic is greater than 1 ton/yr, fill in the table for that (those) pollutant(s). For all other pollutants, if "Emissions before controls (max), lb/hr" multiplied by 24 hours/day is greater than 10 lb/day, fill in the table for that pollutant.
   - If you have no add-on control equipment, "Emissions before controls= will be the same as "Actual emissions"
   - Annual emissions should be based on operating 8760 hr/yr unless you are requesting operating restrictions to limit emissions in line # 8 or have described inherent limitations below.
   - If you use units other than lb/hr or ton/yr, specify the units used (e.g., gr/dscf, lb/ton charged, lb/MMBtu, ton/12-months).
   - Requested Allowable (ton/yr) is often equivalent to Potential to Emit (PTE) as defined in OAC rule 3745-31-01 and OAC rule 3745-77-01.

Pollutant	Emissions before controls (max) (lb/hr)	Actual emissions (lb/hr)	Actual emissions (ton/year)	Requested Allowable (lb/hr)	Requested Allowable (ton/year)
Particulate emissions (PE) (formerly particulate matter, PM)	3.4	0.61	2.71	0.61	2.71
PM_{10} (PM < 10 microns in diameter)	1.7	0.22	1.0	0.22	1.0
Sulfur dioxide (SO_2)	0	0	0	0	0
Nitrogen oxides (NO_x)	0	0	0	0	0
Carbon monoxide (CO)	0	0	0	0	0
Organic compounds (OC)	0	0	0	0	0
Volatile organic compounds (VOC)	0	0	0	0	0
Total HAPs	0	0	0	0	0
Highest single HAP:	0	0	0	0	0
Air Toxics (see instructions):	0	0	0	0	0

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Provide your calculations as an attachment and explain how all process variables and emission factors were selected. Note the emissions factor(s) employed and document the origin. Example: AP-42, Table 4.4-3 (8/97); stack test, Method 5, 4/96; mass balance based on MSDS; etc.

5. **Does this air contaminant source employ emissions control equipment?**

☒ **Yes** - fill out the applicable information below.

☐ **No** - proceed to item # 6.

Note: Pollutant abbreviations used below: Particulates = PE; Organic compounds = OC; Sulfur dioxide = SO_2; Nitrogen oxides = NOx; Carbon monoxide = CO

☐ **Cyclone/Multiclone**

Manufacturer: ____________ Year installed: ____________

What do you call this control equipment: ____________

Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other ____________

Estimated capture efficiency (%): ____________ Basis for efficiency: ____________

Design control efficiency (%): ____________ Basis for efficiency: ____________

Type: ☐ Cyclone ☐ Multiclone ☐ Rotoclone ☐ Other ____________

☐ This is the only control equipment on this air contaminant source

If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel

List any other air contaminant sources that are also vented to this control equipment:

____

☐ **Fabric Filter/Baghouse**

Manufacturer: ____________ Year installed: ____________

What do you call this control equipment: ____________

Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other ____________

Estimated capture efficiency (%): ____________ Basis for efficiency: ____________

Design control efficiency (%): ____________ Basis for efficiency: ____________

Operating pressure drop range (inches of water): Minimum: ____________ Maximum: ____________

Pressure type: ☐ Negative pressure ☐ Positive pressure

Fabric cleaning mechanism: ☐ Reverse air ☐ Pulse jet ☐ Shaker ☐ Other ____________

☐ Lime injection or fabric coating agent used: Type: ____________ Feed rate: ____________

☐ This is the only control equipment on this air contaminant source

If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel

List any other air contaminant sources that are also vented to this control equipment:

____

☐ **Wet Scrubber**

Manufacturer: ____________ Year installed: ____________

What do you call this control equipment: ____________

Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other ____________

Estimated capture efficiency (%): ____________ Basis for efficiency: ____________

Design control efficiency (%): ____________ Basis for efficiency: ____________

Type: ☐ Spray chamber ☐ Packed bed ☐ Impingement ☐ Venturi ☐ Other ____________

Operating pressure drop range (inches of water): Minimum: ____________ Maximum: ____________

pH range for scrubbing liquid: Minimum: ____________ Maximum: ____________

Scrubbing liquid flow rate (gal/min): ____________

Is scrubber liquid recirculated? ☐ Yes ☐ No

Water supply pressure (psig): ____________ NOTE: This item for spray chambers only.

☐ This is the only control equipment on this air contaminant source

If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel

List any other air contaminant sources that are also vented to this control equipment:

____

☐ **Electrostatic Precipitator**

Manufacturer: ____________ Year installed: ____________

What do you call this control equipment: ____________

Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other ____________

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Estimated capture efficiency (%):__________ Basis for efficiency: __________
Design control efficiency (%):__________ Basis for efficiency: __________
Type: ☐ Plate-wire ☐ Flat-plate ☐ Tubular ☐ Wet ☐ Other __________
Number of operating fields: __________

☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:
____

☐ **Concentrator**
Manufacturer: __________ Year installed: __________
What do you call this control equipment: __________
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other __________
Estimated capture efficiency (%):__________ Basis for efficiency: __________
Design regeneration cycle time (minutes): __________
Minimum desorption air stream temperature (°F): __________
Rotational rate (revolutions/hour): __________
☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:
____

☐ **Catalytic Incinerator**
Manufacturer: __________ Year installed: __________
What do you call this control equipment: __________
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other __________
Estimated capture efficiency (%):__________ Basis for efficiency: __________
Design control efficiency (%):__________ Basis for efficiency: __________
Minimum inlet gas temperature (°F): __________
Combustion chamber residence time (seconds): __________
Minimum temperature difference (°F) across catalyst during air contaminant source operation: __________
☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:
____

☐ **Thermal Incinerator/Thermal Oxidizer**
Manufacturer: __________ Year installed: __________
What do you call this control equipment: __________
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other __________
Estimated capture efficiency (%):__________ Basis for efficiency: __________
Design control efficiency (%):__________ Basis for efficiency: __________
Minimum operating temperature (°F) and location: __________ (See line by line instructions.)
Combustion chamber residence time (seconds): __________
☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:
____

☐ **Flare**
Manufacturer: __________ Year installed: __________
What do you call this control equipment: __________
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other __________
Estimated capture efficiency (%):__________ Basis for efficiency: __________
Design control efficiency (%):__________ Basis for efficiency: __________
Type: ☐ Enclosed ☐ Elevated (open)
Ignition device: ☐ Electric arc ☐ Pilot flame
Flame presence sensor: ☐ Yes ☐ No
☐ This is the only control equipment on this air contaminant source

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If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:
____

☐ **Condenser**
Manufacturer: ______________ Year installed: ______________
What do you call this control equipment: ______________
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other ______
Estimated capture efficiency (%):______ Basis for efficiency: ______
Design control efficiency (%):______ Basis for efficiency: ______

Type: ☐ Indirect contact ☐ Direct contact
Maximum exhaust gas temperature (°F) during air contaminant source operation: ______
Coolant type: ______________
Design coolant temperature (°F): Minimum ______ Maximum ______
Design coolant flow rate (gpm): ______________
☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:
____

☐ **Carbon Absorber**
Manufacturer: ______________ Year installed: ______________
What do you call this control equipment: ______________
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other ______
Estimated capture efficiency (%):______ Basis for efficiency: ______
Design control efficiency (%):______ Basis for efficiency: ______
Type: ☐ On-site regenerative ☐ Disposable
Maximum design outlet organic compound concentration (ppmv): ______
Carbon replacement frequency or regeneration cycle time (specify units): ______
Maximum temperature of the carbon bed, after regeneration (including any cooling cycle): ______
☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:
____

☐ **Dry Scrubber**
Manufacturer: ______________ Year installed: ______________
What do you call this control equipment: ______________
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other ______
Estimated capture efficiency (%):______ Basis for efficiency: ______
Design control efficiency (%):______ Basis for efficiency: ______
Reagent(s) used: Type: ______________ Injection rate(s): ______
Operating pressure drop range (inches of water): Minimum: ______ Maximum: ______
☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:
____

☐ **Paint booth filter**
Type: ☐ Paper ☐ Fiberglass ☐ Water curtain ☐ Other ______________
Design control efficiency (%):______ Basis for efficiency: ______

☒ **Other**, describe : PHYSICAL BARRIER FOR WIND SPEED REDUCTION
Manufacturer: NA Year installed: NEW FACILITY
What do you call this control equipment: FUGITIVE DUST CONTROL PLAN
Pollutant(s) controlled: ☒ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☒ Other PM10
Estimated capture efficiency (%):>99 for biomass transfer Basis for efficiency: engineering judgement

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Design control efficiency (%):50 Basis for efficiency: OEPA RACM Guidance, Table 2.1.2-8
☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☒ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment: OTHER SOURCES ARE NOT VENTED TO THIS SOURCE, BUT PRIMARY CONTROL IS VIA WINDSCREEN. SEE DISCUSSION IN EMISSIONS INVENTORY.

6. Attach a Process or Activity Flow Diagram to this application for each air contaminant source included in the application. The diagram should indicate their relationships to one another. See the line by line PTI instructions for additional information.

7. Emissions egress point(s) information: PTIs which allow total emissions in excess of the thresholds listed below will be subject to an air quality modeling analysis. This analysis is to assure that the impact from the requested project will not exceed Ohio=s Acceptable Incremental Impacts for criteria pollutants and/or Maximum Allowable Ground Level Concentrations (MAGLC) for air toxics. Permit requests that would have unacceptable impacts can not be approved as proposed. See the line by line PTI instructions for additional information.

   Complete the tables below if the requested allowable annual emission rate for this PTI exceeds any of the following:

   - Particulate Matter (PM10): 10 tons per year
   - Sulfur Dioxide (SO2): 25 tons per year
   - Nitrogen Oxides (NOx): 25 tons per year
   - Carbon Monoxide (CO): 100 tons per year
   - Air Toxic: 1 ton per year. An air toxic is any air pollutant for which the American Council of Governmental Industrial Hygienists (ACGIH) has established a Threshold Limit Value (TLV).

   Complete Table 7-A below for each stack emissions egress point. An egress point is a point at which emissions from an air contaminant source are released into the ambient (outside) air. List each individual egress point on a separate line.

Table 7-A, Stack Egress Point Information

Company Name or ID for the Egress Point (examples: Stack A; Boiler Stack; etc.)	Type Code*	Stack Egress Point Shape and Dimensions (in)(examples: round 10 inch ID; rectangular 14 X 16 inches; etc.)	Stack Egress Point Height from the Ground (ft)	Stack Temp. at Max. Capacity (F)	Stack Flow Rate at Max. Capacity (ACFM)	Minimum Distance to the Property Line (ft)

*Type codes for stack egress points:

A. vertical stack (unobstructed): There are no obstructions to upward flow in or on the stack such as a rain cap.
B. vertical stack (obstructed): There are obstructions to the upward flow, such as a rain cap, which prevents or inhibits the air flow in a vertical direction.
C. non-vertical stack: The stack directs the air flow in a direction which is not directly upward.

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Complete Table 7-B below for each fugitive emissions egress point. List each individual egress point on a separate line. Refer to the description of the fugitive egress point type codes below the table for use in completing the type code column of the table. For air contaminant sources like roadways and storage piles, only the first 5 columns need to be completed. For an air contaminant source with multiple fugitive emissions egress points, include only the primary egress points.

Table 7-B, Fugitive Egress Point Information

Company ID for the Egress Point (examples; Garage Door B, Building C; Roof Monitor; etc.)	Type Code*	Egress Point Description (examples: garage door, 12 X 30 feet, west wall; outside gravel storage piles; etc.)	Fugitive Egress Point Height from the Ground (ft)	Minimum Distance to the Property Line (ft)	Exit Gas Temp. (F)
BIOMASS STORAGE	F	BIOMASS STORAGE PILES	25	450	ambient
BIOMASS CONVEYOR	F	TRANSFER POINT FROM BIOMASS CONVEYOR TO PILE (LOAD-IN) AND FROM LOADERS TO CONVEYOR HOPPER (LOAD-OUT)	10	860	ambient
FRONT-END LOADERS	F	FRONT-END LOADERS DEPOSITION ONTO PILE	10	860	ambient

*Type codes for fugitive egress point:

D. door or window
E. other opening in the building without a duct
F. no stack and no building enclosing the air contaminant source (e.g., roadways)

Complete Table 7-C below for each Stack Egress Point identified in Table 7-A above. In each case, use the dimensions of the largest nearby building, building segment or structure. List each individual egress point on a separate line. Use the same Company Name or ID for the Egress Point in Table 7-C that was used in Table 7-A. See the line by line PTI instructions for additional information.

Table 7-C, Egress Point Additional Information (Add rows as necessary)

Company ID or Name for the Egress Point	Building Height (ft)	Building Width (ft)	Building Length (ft)

8. Request for Federally Enforceable Limits

As part of this permit application, do you wish to propose voluntary restrictions to limit emissions in order to avoid specific requirements listed below, (i.e., are you requesting federally enforceable limits to obtain synthetic minor status)?

☐ yes
☒ no
☐ not sure - please contact me if this affects me

If yes, why are you requesting federally enforceable limits? Check all that apply.

a. ☐ to avoid being a major source (see OAC rule 3745-77-01)
b. ☐ to avoid being a major MACT source (see OAC rule 3745-31-01)
c. ☐ to avoid being a major modification (see OAC rule 3745-31-01)

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d. ☐ to avoid being a major stationary source (see OAC rule 3745-31-01)
e. ☐ to avoid an air dispersion modeling requirement (see Engineering Guide # 69)
f. ☐ to avoid another requirement. Describe: ______________________________

If you checked a., b. or d., please attach a facility-wide potential to emit (PTE) analysis (for each pollutant) and synthetic minor strategy to this application. (See line by line instructions for definition of PTE.) If you checked c., please attach a net emission change analysis to this application.

9. If this air contaminant source utilizes any continuous emissions monitoring equipment for indicating or demonstrating compliance, complete the following table. This does not include continuous parametric monitoring systems.

Company ID for Egress Point	Type of Monitor	Applicable performance specification (40 CFR 60, Appendix B)	Pollutant(s) Monitored

10. Do you wish to permit this air contaminant source as a portable source, allowing relocation within the state in accordance with OAC rule 3745-31-03 or OAC rule 3745-31-05?

☐ yes - Note: notification requirements in rules cited above must be followed.
☒ no

11. The appropriate Emissions Activity Category (EAC) form(s) must be completed and attached for each air contaminant source. At least one complete EAC form must be submitted for each air contaminant source for the application to be considered complete. Refer to the list attached to the PTI instructions.

FOR OHIO EPA USE
FACILITY ID: ________________
EU ID: __________ PTI#: __________

EMISSIONS ACTIVITY CATEGORY FORM
STORAGE PILES

This form is to be completed for each storage pile. State/Federal regulations which may apply to storage piles are listed in the instructions. Note that there may be other regulations which apply to this emissions unit which are not included in this list.

1. Reason this form is being submitted (Check one)

☒ New Permit ☐ Renewal or Modification of Air Permit Number(s) (e.g. F001) ____________

2. Maximum Operating Schedule: __24______hours per day; __365_____days per year

If the schedule is less than 24 hours/day or 365 days/year, what limits the schedule to less than maximum? See instructions for examples. ______________________________

3. Meteorological data at or near storage pile area:

a. mean number of days per year in which >0.01 inch of precipitation occurred __150__days
b. percentage of time wind speed exceeds 12 miles per hour: 28%
c. mean wind speed: 10 miles per hour
d. source of meteorological data: (a) AP-42 Figure 13.2.2-1
(b) OEPA assumption from Buckeye Industrial Mining PTI review
(c) Youngstown, Ohio per Form 3112 instructions

4. Description of storage pile activities:

ID	Type of Material Stored	Method of Load-in (check one or more)	Method of Load-out (check one or more)
A	COAL	☒ conveyor/stacker: ☐ front-end loader ☐ other (describe): ________	☒ bucket wheel reclaimer ☐ under pile feed ☐ rake reclaimer ☐ pan scraper ☒ front-end loader ☐ other: ________
B	BIOMASS	☒ conveyor/stacker: ☒ front-end loader ☒ other (describe): TRUCKS	☐ bucket wheel reclaimer ☐ under pile feed ☐ rake reclaimer ☐ pan scraper ☒ front-end loader ☐ other: ________
C		☐ conveyor/stacker: ☐ front-end loader ☐ other (describe): ________	☐ bucket wheel reclaimer ☐ under pile feed ☐ rake reclaimer ☐ pan scraper ☐ front-end loader ☐ other: ________
D		☐ conveyor/stacker: ☐ front-end loader ☐ other (describe): ________	☐ bucket wheel reclaimer ☐ under pile feed ☐ rake reclaimer ☐ pan scraper ☐ front-end loader ☐ other: ________
E		☐ conveyor/stacker: ☐ front-end loader ☐ other (describe): ________	☐ bucket wheel reclaimer ☐ under pile feed ☐ rake reclaimer ☐ pan scraper ☐ front-end loader ☐ other: ________

5. STORAGE PILE ACTIVITIES:

ID	Number of Separate Piles	Average Silt Content (wt %)	Average Moisture Content (wt %)	Average Pile Surface Area (acres)	Max. Load-in Rate (tons/hr)	Max. Load-in Rate (tons/yr)	Max. Load-out Rate (tons/hr)	Max. Load-out Rate (tons/yr)
A	4	4.8	5.5	3.63	7,000	61.32 MILLION	4,000	35.04 MILLION
B	2	8.0	30	2.2	2,000	17.5 MILLION	2,000	17.5 MILLION
C								
D								
E								

6. WIND EROSION CONTROL METHODS

ID	Enclosure, Covering, and/or Operating Practices (describe)	Chemical Stabilization (check one or more)	Application Frequency	Overall Control Eff. (%)	Basis for Overall Wind Erosion Control Efficiency
A	3-SIDED WINDSCREEN PARTIAL ENCLOSURE	☐ water ☐ crusting agents ☒ other: TBD	AS NEEDED	75	ENGINEERING ESTIMATE
B	3-SIDED WINDSCREEN PARTIAL ENCLOSURE (SAME AS FOR A)	☐ water ☐ crusting agents ☒ other: TBD	AS NEEDED	75	ENGINEERING ESTIMATE
C		☐ water ☐ crusting agents ☐ other: ________			
D		☐ water ☐ crusting agents ☐ other: ________			
E		☐ water ☐ crusting agents ☐ other: ________			

7. LOAD-IN CONTROL METHODS

ID	Enclosure and/or Operating Practices (describe)	Chemical Stabilization	Application Frequency	Overall Control Eff. (%)	Basis for Overall Load-in Control Efficiency
A	DUST SUPPRESSION AT STACKER/ RECLAIMER AND CONVEYOR TRANSFER POINTS	☐ water ☒ dust suppressant ☐ other: ______	AS NEEDED	80	OEPA RACM GUIDE TABLE 2.4-2
B	DUST SUPPRESSION AT CONVEYOR TRANSFER POINTS	☐ water ☒ dust suppressant ☐ other: ______	AS NEEDED	80	OEPA RACM GUIDE TABLE 2.4-2
C		☐ water ☐ dust suppressant ☐ other: ______			
D		☐ water ☐ dust suppressant ☐ other: ______			
E		☐ water ☐ dust suppressant ☐ other: ______			

8. LOAD-OUT CONTROL METHODS

ID	Enclosure and/or Operating Practices (describe)	Chemical Stabilization	Application Frequency	Overall Control Eff. (%)	Basis for Overall Load-out Control Efficiency
A	DUST SUPPRESSION AT STACKER/ RECLAIMER AND CONVEYOR TRANSFER POINTS	☐ water ☒ dust suppressant ☐ other: ______	AS NEEDED	80	OEPA RACM GUIDE TABLE 2.4-2
B	DUST SUPPRESSION AT CONVEYOR TRANSFER POINTS	☐ water ☒ dust suppressant ☐ other: ______	AS NEEDED	80	OEPA RACM GUIDE TABLE 2.4-2
C		☐ water ☐ dust suppressant ☐ other: ______			
D		☐ water ☐ dust suppressant ☐ other: ______			
E		☐ water ☐ dust suppressant ☐ other: ______			